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SUPPLEMENTAL RESOURCE CONSERVATION AND RECOVERY ACT FACILITY INVESTIGATION SITE 2 FIRE TRAINING AREA NWIRP CALVERTON NY

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TETRA TECH, INC

Supplemental Resource Conservation and Recovery Act Facility Investigation

Site 2 – Fire Training Area

Naval Weapons Industrial Reserve Plant

Calverton, New York

Mid-Atlantic Division
Naval Facilities Engineering Command

Contract Number N62470-08-D-1001
Contract Task Order WE63

October 2012

TETRA TECH

SUPPLEMENTAL RESOURCE CONSERVATION AND RECOVERY ACT FACILITY INVESTIGATION

SITE 2 – FIRE TRAINING AREA

NAVAL WEAPONS INDUSTRIAL RESERVE PLANT CALVERTON, NEW YORK

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TABLE OF CONTENTS

Section **Page NO.**

ACRONYMS AND ABBREVIATIONS……vi

EXECUTIVE SUMMARY……ES-1

1.0 INTRODUCTION.....1-1

1.1 PURPOSE.....1-1
1.2 FACILITY LOCATION.....1-2
1.3 FACILITY HISTORY.....1-2
1.4 PREVIOUS INVESTIGATIONS.....1-3
1.5 SUMMARY OF FIELD ACTIVITIES.....1-3

2.0 SITE BACKGROUND.....2-1

2.1 SITE DESCRIPTION AND PHYSICAL SETTING.....2-1
2.2 SITE HISTORY.....2-1
2.3 ECOLOGICAL SETTING.....2-3

2.3.1 Vegetation.....2-3
2.3.2 Wildlife.....2-4
2.3.3 Wetlands.....2-4
2.3.4 Aquatic Biota.....2-4
2.3.5 Special Status Species.....2-4

2.4 GEOLOGY.....2-5
2.5 HYDROGEOLOGY.....2-5
2.6 PREVIOUS INVESTIGATIONS.....2-6

2.6.1 Initial Assessment Study (IAS).....2-6
2.6.2 Site Investigation (SI).....2-6
2.6.3 RCRA Facility Investigation (RFI).....2-6
2.6.4 Phase 2 RCRA RFI.....2-8

2.7 DATA GAPS.....2-8

3.0 SOIL AND GROUNDWATER INVESTIGATION.....3-1

3.1 SOIL BORINGS.....3-1
3.2 MONITORING WELLS.....3-2
3.3 TEMPORARY WELLS.....3-2
3.4 PIEZOMETER AND STAFF GAUGE INSTALLATION.....3-2
3.5 SITE CHARACTERISTICS.....3-3

3.5.1 Geology.....3-3
3.5.2 Hydrogeology.....3-3

4.0 NATURE AND EXTENT OF CONTAMINATION.....4-1

4.1 SCREENING CRITERIA.....4-1

4.1.1 USEPA Soil and Groundwater Screening Levels for Human Health.....4-1
4.1.2 USEPA Maximum Contaminant Level.....4-2
4.1.3 USEPA Groundwater Volatilization Screening Level.....4-2
4.1.4 New York State Criteria.....4-2
4.1.5 Background Data Evaluation.....4-2

4.2 SUMMARY OF ENVIRONMENTAL MEDIA.....4-2

4.2.1 Surface Soil.....4-2

4.2.2 Subsurface Soil 4-4
4.2.3 Monitoring Wells 4-5
4.2.4 Temporary Wells 4-5

5.0 CHEMICAL FATE AND TRANSPORT ANALYSIS 5-1

5.1 CHEMICAL AND PHYSICAL PROPERTIES IMPACTING FATE AND TRANSPORT OF ORGANIC CHEMICALS 5-1

5.1.1 Specific Gravity 5-1
5.1.2 Vapor Pressure 5-2
5.1.3 Water Solubility 5-2
5.1.4 Henry's Law Constant 5-2
5.1.5 Octanol/Water Partition Coefficient 5-3
5.1.6 Organic Carbon Partition Coefficient 5-3
5.1.7 Mobility Index 5-3

5.2 CHEMICAL AND PHYSICAL PROPERTIES IMPACTING FATE AND TRANSPORT OF INORGANIC CHEMICALS 5-4
5.3 CHEMICAL PERSISTENCE AND DEGRADATION PROCESS 5-4

5.3.1 Monocyclic Aromatics 5-4
5.3.2 Halogenated Aliphatics 5-5
5.3.3 PAHs 5-5
5.3.4 Metals 5-6

5.4 CHEMICAL MIGRATION 5-7

5.4.1 Volatile Organic Compounds 5-7
5.4.2 Polycyclic Aromatic Hydrocarbons 5-7
5.4.3 Inorganics 5-8

5.5 SUMMARY 5-8

6.0 HUMAN HEALTH RISK ASSESSMENT 6-1

6.1 DATA EVALUATION 6-2

6.1.1 Data Usability 6-3
6.1.2 Derivation of Screening Criteria 6-3
6.1.3 Decision Rules for Establishing COPCs 6-7
6.1.4 COPCs Selected for HHRA 6-7

6.1.4.1 Surface Soil 6-7
6.1.4.2 Subsurface Soils 6-8
6.1.4.3 Groundwater 6-9
6.1.4.4 Summary 6-10

6.2 EXPOSURE ASSESSMENT 6-10

6.2.1 Conceptual Site Model 6-11

6.2.1.1 Site Sources of Environmental Contamination 6-11
6.2.1.2 Potential Contaminant Release Mechanisms and Transport/Migration Pathways 6-12
6.2.1.3 Potential Current and Future Receptors of Concern and Exposure Pathways 6-12

6.2.2 Central Tendency Exposure versus Reasonable Maximum Exposure 6-14
6.2.3 Exposure Point Concentrations 6-14
6.2.4 Chemical Intake Estimation 6-15

6.2.4.1 Incidental Ingestion of Soil 6-15
6.2.4.2 Dermal Contact with Soil 6-16
6.2.4.3 Inhalation of Air Containing Fugitive Dust/Volatiles Emitted from Soil 6-17
6.2.4.4 Ingestion of Groundwater 6-18
6.2.4.5 Dermal Contact with Groundwater 6-19

6.2.4.6 Inhalation of Volatiles in Groundwater 6-20
6.2.4.7 Assessing Cancer Risks from Early Life Exposures 6-24

6.3 TOXICITY ASSESSMENT 6-24

6.3.1 Toxicity Criteria for Oral and Inhalation Exposures 6-25
6.3.2 Toxicity Criteria for Dermal Exposure 6-26
6.3.3 Toxicity Criteria for Trichloroethene 6-26
6.3.4 Toxicity Criteria for Carcinogenic Effects of PAHs 6-27

6.4 RISK CHARACTERIZATION 6-28

6.4.1 Quantitative Analysis for Chemicals 6-28
6.4.2 Comparison of Quantitative Risk Estimates to Benchmarks 6-29
6.4.3 Results of the Risk Characterization 6-29

6.4.3.1 Noncarcinogenic Risks 6-30
6.4.3.2 Carcinogenic Risks 6-30
6.4.3.3 Risks from Vapor Intrusion 6-30
6.4.3.4 Risk Estimates Due to Chemicals Attributable to Background 6-31

6.5 UNCERTAINTY ANALYSIS 6-31

6.5.1 Uncertainty in Data Evaluation 6-32
6.5.2 Uncertainty in the Exposure Assessment 6-33
6.5.3 Uncertainty in the Toxicological Evaluation 6-35
6.5.4 Uncertainty in the Risk Characterization 6-36

6.6 SUMMARY 6-37

7.0 CONCLUSIONS AND RECOMMENDATIONS 7-1

APPENDICES (CD only)

A Soil sample and soil boring log sheets
B Groundwater Field Forms
C Well Construction Logs and Survey Data
D Chain of Custody Forms
E Analytical Data
F Data Validation Letters
G Background Comparison
H Supporting Information for Human Health Risk Assessment

TABLES

3-1 Soil Sampling Program Summary
3-2 Monitoring Well Details
3-3 Temporary Well Sampling Program
3-4 Piezometer and Staff Gauge Nomenclature, Screen Intervals, and Depths
3-5 Groundwater Elevation Data
4-1 Summary of Descriptive Statistics for Surface Soil
4-2 Summary of Positive Detections in Surface Soil Comparison to Screening Criteria
4-3 Summary of Descriptive Statistics for Subsurface Soil
4-4 Summary of Positive Detections in Subsurface Soil Comparison to Screening Criteria
4-5 Summary of Descriptive Statistics for Groundwater from Monitoring Wells
4-6 Summary of Positive Detections in Groundwater from Monitoring Wells
4-7 Summary of Descriptive Statistics for Groundwater from Temporary Wells

TABLES (Continued)

4-8 Summary of Positive Detections in Groundwater from Temporary Wells
5-1 Environmental Fate and Transport Parameters for Organic Chemicals
5-2 Physical and Chemical Properties of Inorganic Site Contaminants
6-1 Screening Criteria Used In Selection of COPCs – Soil
6-2 Screening Criteria Used In Selection of COPCs – Groundwater
6-3 Occurrence, Distribution, and Selection of Chemicals of Potential Concern – Direct Contact with Surface Soil
6-4 Occurrence, Distribution, and Selection of Chemicals of Potential Concern – Migration from Surface Soil to Groundwater
6-5 Occurrence, Distribution, and Selection of Chemicals of Potential Concern – Direct Contact with Subsurface Soil
6-6 Occurrence, Distribution, and Selection of Chemicals of Potential Concern – Migration from Subsurface Soil to Groundwater
6-7 Occurrence, Distribution, and Selection of Chemicals of Potential Concern – Direct Contact with Groundwater
6-8 Occurrence, Distribution, and Selection of Chemicals of Potential Concern – Vapor Intrusion
6-9 Occurrence, Distribution, and Selection of Chemicals of Potential Concern – Migration from Groundwater to Surface Water
6-10 Chemicals Retained as COPCs
6-11 Selection of Exposure Pathways
6-12 Receptors and Exposure Routes for Quantitative Evaluation
6-13 Exposure Point Concentrations
6-14 Summary of Exposure Input Parameters – Reasonable Maximum Exposures
6-15 Summary of Exposure Input Parameters – Central Tendency Exposures
6-16 Intermediate Variables for Calculating DA (Event)
6-17 Chemical Properties for Volatilization from Groundwater to Outdoor Air Models
6-18 Non-Cancer Toxicity Data – Oral/Dermal
6-19 Non-Cancer Toxicity Data – Inhalation
6-20 Cancer Toxicity Data – Oral/Dermal
6-21 Cancer Toxicity Data – Inhalation
6-22 Summary of Cancer Risks and Hazard Indices – Reasonable Maximum Exposures
6-23 Summary of Cancer Risks and Hazard Indices – Central Tendency Exposures
6-24 Summary of Receptor Risks and Hazards for COPCs – Vapor Intrusion – Residential Exposures
6-25 Summary of Receptor Risks and Hazards for COPCs – Vapor Intrusion – Industrial Exposures
6-26 Risks Associated with Naturally Occurring Chemicals

FIGURES

1-1 General Location Map
1-2 Site Location Map
2-1 Site Layout Map
2-2 Former Air Injection Wells and Soil Vapor Extraction Wells
2-3 Fire Training Pit Excavation Areas
2-4 Temporary Wells (County)
2-5 Wetland Area
3-1 Soil Boring Locations
3-2 Piezometer and Staff Gauge Location Map
3-3 Cross Section Location Map
3-4 Cross Section Map A – A’
3-5 Cross Section Map B – B’
3-6 December 2011 Potentiometric Map
3-7 February 2012 Potentiometric Map
4-1 Soil Boring Sample Results

FIGURES (Continued)

4-2 Monitoring Well Analytical Results
4-3 Analytical Results – Temporary Wells (Site)
4-4 Analytical Results – Temporary Wells
6-1 Human Health Conceptual Site Model
6-2 Summary of Cumulative Cancer Risks – Reasonable Maximum Exposures
6-3 Summary of Media-Specific Risks – Reasonable Maximum Exposures
6-4 Summary of Cumulative Cancer Risks – Central Tendency Exposures
6-5 Summary of Media-Specific Cancer Risks – Central Tendency Exposures

ACRONYMS AND ABBREVIATIONS

τ	lag time
>	more than
<	less than
π	Pi
°C	Degrees Celsius
°K	Degrees Kelvin
µg/kg	micrograms per kilogram
µg/L	micrograms per
A	Trench Area
ABS	Absorption Factor
ABS_{GI}	Absorption efficiency in the gastrointestinal tract
ACH	Air Changes per Hour
ADAF	Age Dependent Adjustment Factor
AF	Soil Skin Adherence Factor
AT	Average Time
AT-C	Average Time (Cancer)
atm-m^3/mole	atmospheres times cubic meters per mole
ASL	Above Screening Level
AS/SVE	Air Sparge/Soil Vapor Extraction
AST	Aboveground Storage Tank
AT-N	Average Time (Non-cancer)
ATSDR	Agency for Toxic Substances and Disease Registry
B	Dimensionless ratio of the permeability of the stratum corneum relative to the permeability across the viable epidermis
BCF	bioconcentration factor
bgs	below ground surface
BRAC	Base Realignment and Closure
BSL	Below COPC Screening Level
BTU	British Thermal Unit
BW	Body Weight
C	Carcinogenic
C_{air}	Exposure Concentration for air
C_{gw}	Exposure Concentration in Groundwater
C_s	Concentration of chemical in soil
C_{soil}	Exposure Concentration for soil

Cal EPA	California Environmental Protection Agency
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CAS No.	Chemical Abstract Service Number
CF	Conversion Factor
COC	Chemical of Concern
COPC	Chemical of Potential Concern
CFR	Code of Federal Regulations
CSF	Cancer Slope Factor
CSM	Conceptual Site Model
CTE	Central Tendency Exposures
CTO	Contract Task Order
CLEAN	Comprehensive Long-Term Environmental Action Navy
cm^2	square centimeter
CMS	Corrective Measures Study
DA_{event}	Absorbed Dose per Event
DAD	Dermally Absorbed Dose
DNAPLs	Dense non-Aqueous Phase Liquids
DPT	Direct Push Technology
ED	Exposure Duration
EE/CA	Engineering Evaluation and Cost Analysis
EF	Exposure Frequency
EOD	Explosive Ordnance Disposal EOD
EPC	Exposure Point Concentration
ER	Environmental Restoration
ET	Exposure Time
EU	Exposure Unit
EV	Event Frequency
F	Fraction of floor through which containment can enter
FI	Fraction Ingestion
FS	Feasibility Study
g/mole	grams per mole
GSL	Groundwater Screening Levels
HEAST	Health Effects Assessment Summary Tables
HHRA	Human Health Risk Assessment
HI	Hazard Index
H_i	Henry's Law Constant
HNUS	Halliburton NUS

HQ	Hazard Quotient
IAS	Initial Assessment Study
ILCR	Incremental Lifetime Cancer Risk
IR	Ingestion Rate
IRIS	Integrated Risk Information System
IUR	Inhalation Unit Risk
J	Estimated Value
Kd	distribution coefficient
kG,H_2O	gas-phase mass-transfer coefficient of water vapor
K_i	Contaminant's overall mass-transfer coefficient
k_iG	gas-phase mass transfer coefficient
k_iL	Liquid-phase mass-transfer coefficient
kL,O_2	Liquid-phase mass-transfer coefficient of oxygen
K_p	permeability coefficient from water through skin
kg/mg	kilogram/milligram
L/day	Liters per Day
m^3	cubic meter
MEC	Munitions of Explosive Concern
MCLs	Maximum Contaminant Levels
MCLG	Maximum Contaminant Level Goal
mg/kg	milligram per kilogram
MI	Mobility Index
mm	millimeter
MW_i	Molecular weight of component
MWH_2O	Molecular weight of water
MWO_2	Molecular weight of oxygen
N	non-carcinogenic
NA	Not Applicable/Not Available
NAVFAC	Naval Facilities Engineering Command
NCEA	National Center for Environmental Assessment
NGC	Northrop Grumman Corporation
NRWQC	National Recommended Water Quality Criteria
NTCRA	Non-Time Critical Removal Action
NTX	No Toxicity Criteria
NUT	Essential Nutrient
NVT	Not Sufficiently Volatile
NWIRP	Naval Weapons Reserve Plant

NYSDEC	New York State Department of Environmental Conservation
NYSDOH	New York State Department of Health
ORC	Oxygen Releasing Compound
ORNL	Oak Ridge National Laboratory
OSWER	Office of Solid Waste and Emergency Response
PA	Preliminary Assessment
PCBs	Polychlorinated Biphenyls
PEF	Particulate Emission Factor
PID	Photoionization Detector
PPRTV	Provisional Peer Reviewed Toxicity Value
R	ideal gas-constant
RAGS	Risk Assessment Guidance for Superfund
RCRA	Resource Conservation and Recovery Act
RDA	Recommended Daily Allowance
RDI	Recommended Daily Intake
RI	Remedial Investigation
RFA	RCRA Facility Assessment
RfC	Reference Concentration
RfD	Reference Dose
RFI	RCRA Facility Investigation
RME	Reasonable Maximum Exposure
RSL	Regional Screening Level
S	Solubility
SA	Skin Surface Available for Contact
SCDHS	Suffolk County Department of Health Services
SDWA	Safe Drinking Water Act
SSL	Soil Screening Level
SI	Site Investigation
SVOC	Semi-Volatile Organic Compounds
SWMUs	Solid Waste Management Units
T	Average system absolute temperate
t*	time to reach steady-state conditions
Tau	Lag Time
TEFs	Toxic Equivalency Factors
Tetra Tech Inc.	Tetra Tech
T_{event}	Event Duration
UCL	Upper 95 Percent Confidence Limit

UFP-SAP	Uniform Federal Policy Sampling and Analysis Plan
USEPA	United States Environmental Protection Agency
VDEQ	Virginia Department of Environmental Quality
V	Trench Volume
VF	Volatilization Factor
VISL	Vapor Intrusion Screening Level
VOCs	Volatile Organic Compounds
VP	Vapor Pressure

EXECUTIVE SUMMARY

This Supplemental Remedial Investigation/ Resource Conservation and Recovery Act (RCRA) Facility Investigation (RFI) for Site 2 – Fire Training Area at Naval Weapons Industrial Reserve Plant (NWIRP) Calverton, Suffolk County, Long Island, New York, was prepared by Tetra Tech Inc. (Tetra Tech) for Naval Facilities Engineering Command (NAVFAC) – Mid-Atlantic under the U.S. Navy's Comprehensive Long-Term Environmental Action Navy (CLEAN) Contract No. N62470-08-D-1001, Contract Task Order (CTO) WE63. This RFI addresses soils and on property groundwater at the Site 2 Parcel (Navy owned property), as well as offsite groundwater.

The Fire Training Area was used by Northrop Grumman and Navy crash rescue crews as a training area since 1955, and possibly as early as 1952. Activities at the Site consisted of clearing an area up to 100 feet or more in diameter and creating an earthen berm to surround the clearing. The bermed area was filled with water and waste fuels, oils, and solvents were dumped in and ignited. Aircraft sections were sometimes placed in the area to simulate crash conditions. After 1975, waste solvents (chlorinated and non-chlorinated) were reportedly no longer mixed with the waste fuel and oil. A curbed, 50-foot diameter concrete ring was constructed in 1982, and the use of earthen berms was discontinued. From 1982 to 1996, the concrete ring was used to contain liquids for fire training exercises. A 6,000 gallon partially buried fuel storage tank was removed in the 1980s. A 1,000-gallon steel aboveground fuel storage tank was removed in 1996. To date, remedial activities have consisted of spill cleanup, removal of storage tanks and contaminated soil, installation of a Free Product Recovery (FPR) system, installation of a pilot-scale air sparging/soil vapor extraction (AS/SVE) system, and excavation and offsite disposal of remaining site structures and shallow (less than 6 feet) petroleum-contaminated soil (Tetra Tech, 2010). In 2008, Suffolk County Department of Health Services (SCDHS) sampled groundwater at five off site locations (SL/G-1 through SL/G-5) downgradient of Site 2. The detected VOCs in off-site locations are consistent with contaminants detected at Site 2 Source Area.

The unconsolidated sediments that underlie NWIRP Calverton are generally coarse-grained with high porosities and permeabilities. The Upper Glacial Formation, the Magothy Formation, and the Lloyd Sand are the major regional aquifers. The Upper Glacial and the Magothy aquifers are believed to be hydraulically interconnected and to function as a single unconfined aquifer and are widely used as a source of groundwater in Suffolk County. The Raritan Clay has a very low permeability (approximately 3 X 10^{-5} feet/day) and hydrologically acts as a regional confining layer. The confining nature of this unit is believed to minimize local risk of contamination to the underlying Lloyd Sand aquifer (McClymonds and Franke, 1972).

During the RFI, synoptic groundwater elevations were measured in new and existing piezometer, monitoring well, and staff gauge locations in December 2011 and February 2012. Based on these

measurements, groundwater flow at Site 2 is toward the southeast, with elevations ranging from 34 to 41 feet above Mean Sea Level (MSL) The Peconic River basin is the likely ultimate discharge point for groundwater in the shallow aquifer zones in the Southern portion of the NWIRP Calverton.

During the 2011 investigation, a total of 129 groundwater samples, 15 subsurface soil samples and 2 surface soil samples were collected. In accordance with the 2011 UFP-SAP and based on location specific need, all of the groundwater samples and most of the soil samples were analyzed for VOCs and select soil samples were analyzed for PAHs, PCBs and metals. Seventeen piezometers and four staff gauges were installed south and east of Site 2 in order to create a more accurate groundwater potentiometric surface map. These locations included 13 off property locations up to 4,700 feet from the property line.

Based on the site specific HHRA, even though surface soils were found to contain PAHs and PCBs at concentrations above EPA Regional Screening Levels; a site-specific risk assessment did not identify excess risk (greater than 10^{-4} to 10^{-6} ICLR) to current and potential receptors (construction workers, industrial workers, recreational users, and hypothetical child and adult resident). Three PAHs (benzo[a]anthracene, benzo(a)pyrene, and dibenzo(a,h)anthracene) resulted in a 1×10^{-5} ICLR to the hypothetical lifelong (child and adult) resident. HQs were less than 1 for each of the current or potential future receptor.

Several metals were detected in Site 2 soils, but were not detected at concentrations greater than site-specific background values.

As discussed below, with the exception of a Xylene detection in subsurface soils at FT-SB408 (15 to 17 feet bgs), VOCs were not detected in subsurface or surface soils. PAHs and PCBs detected in soil were all below NYSDEC Soil Cleanup Objectives for residential land use.

Xylenes were detected in one out of fifteen subsurface samples (FT-SB408) at a concentration of 2,500 µg/kg, which exceeds the EPA RSL for protection of groundwater of 180 µg/kg and the NYSDEC Soil Clean-up Objectives for Unrestricted Land Use of 260 µg/kg. Prior to the 1995 to 2000 AS/SVE treatment, xylene concentrations in this area ranged up to 20,000 µg/kg.

Based on the site specific HHRA, which considered current or potential receptors, five VOCs in groundwater (1,4-dichlorobenzene, chloroform, ethylbenzene, trichloroethene, and vinyl chloride) resulted in a combined 1×10^{-4} ICLR to the hypothetical lifelong (child and adult) resident. Individually, vinyl chloride resulted in a risk of 10^{-4} of incidental ingestion to child residence and lifelong (child and adult) resident. These VOCs were detected in 6 of 26 monitoring well samples. Xylenes, vinyl chloride, and tricholorethene at FT-MW02S were also detected above NYSDOH MCLs. VOCs detected in other monitoring wells were below NYSDOH MCLs.

Vapor intrusion of the five VOCs were also identified as a potential concern if residential buildings are constructed at Site 2 (ICLR 2 X 10^{-5}).

The groundwater downgradient (south and east of the Site 2 clearing) was investigated at NWIRP to the NWIRP fence line (property line) along Grumman Boulevard to determine whether VOCs were migrating off property. Except for trichloroethene, other VOCs detected in this area were less than NYSDOH MCLs. The maximum detection of trichloroethene in this area was 49 µg/L in FT-TW434 at a depth of 31 to 35 feet bgs. The highest concentration of trichloroethene historically detected at Site 2 in any groundwater sample was 90.3 µg/L at a temporary well (26 to 30 feet bgs) at Site 2 in 1994.

Based on a preliminary evaluation of the site data, there is a trichloroethene plume approximately 10 feet thick and approximately 200 feet wide that extends to the NWIRP fence line (approximately 750 feet). The plume is defined on the west and east by FT-TW435 (16 µg/L) and FT-TW422 (6.2 µg/L), respectively, and further identified at the fence line at FT-TW428 (5.2 µg/L). Trichloroethene was not detected in groundwater samples below or above the depth interval of 21 to 35 feet bgs. There is evidence that this plume continues off property (e.g SLG-5).

In addition, the trichloroethene plume appears to originate at the Site 2 clearing, but is not delineated to the north and west.

The following recommendations are based on the results of this RFI at Site 2, Fire Training Area:

- Sufficient data has been collected to proceed with an FS for Site 2 soils and on-property groundwater.

- Additional investigations are required to the north and west to confirm the source of the TCE and if necessary address this source.

- Additional monitoring wells are required at select temporary well locations with elevated trichloroethene concentrations to allow long-term evaluation of VOC migration.

- Consistent with the UFP-SAP, and based on the detections of TCE in off property groundwater, conduct further evaluation in that area.

1.0 INTRODUCTION

1.1 PURPOSE

This Supplemental Remedial Investigation/ Resource Conservation and Recovery Act (RCRA) Facility Investigation (RFI) for Site 2 – Fire Training Area at Naval Weapons Industrial Reserve Plant (NWIRP) Calverton, Suffolk County, Long Island, New York (Figures 1-1 and 1-2), was prepared by Tetra Tech Inc. (Tetra Tech) for Naval Facilities Engineering Command (NAVFAC) – Mid-Atlantic under the U.S. Navy's Comprehensive Long-Term Environmental Action Navy (CLEAN) Contract No. N62470-08-D-1001, Contract Task Order (CTO) WE63. This RFI addresses soils and on property groundwater at the Site 2 Parcel (Navy owned property), as well as offsite groundwater.

This work is part of the Navy's Installation Restoration Program, which is designated to identify contamination of Navy and Marine Corps lands and facilities resulting from past operations and to institute remedial actions as necessary. There are four distinct stages. Stage 1 is the Preliminary Assessment (PA), which was formerly known as the Initial Assessment Study (IAS). Stage 2 is a RCRA Facility Assessment-Sampling visit (RFA), also referred to as a Site Investigation (SI) and Corrective Measures Study (CMS), also referred to as an RI and Feasibility Study (FS) that characterizes the contamination at a facility and develops options for remediation of the site. Stage 3 is the RCRA Facility Investigation/Corrective Measures Study (RFI/CMS) (also referred to as a Remedial Investigation/Feasibility Study [RI/FS]), which characterizes the contamination at a facility and develops options for remediation of the site. Stage 4 is the Corrective Action, also referred to as the Remedial Action, which results in the control or cleanup of contamination at sites. This report has been prepared under stage 3.

This RFI was conducted in accordance with the requirements of the New York State Department of Environmental Conservation (NYSDEC). NYSDEC is the lead oversight agency, in accordance with the requirements of the New York State RCRA Hazardous Waste Permit for the facility (NYSDEC 1-4730-00013/00001-0), dated March 25, 1992. The United States Environmental Protection Agency (USEPA) supports NYSDEC in its oversight activities in accordance with the requirements of the previous USEPA facility permit (USEPA ID Number NYD003995198) dated May 11, 1992. The requirements of both permits appear to be the same, although the terminology and format vary. The facility is a State Superfund site and is subject to NYSDEC Part 375 Soil Cleanup Objectives (NYSDEC, 2006b) requirements.

In accordance with the requirements of the NYSDEC Division of Solid and Hazardous Materials, a Part 373 Permit was issued to the Navy on April 18, 2000, under the NYSDEC, implementing regulations (6 NYCRR Part 621). This permit superseded and replaced the original Part 373 Permit to Operate a Hazardous Waste Storage Facility issued to then Grumman Aerospace Corporation on March 25, 1992.

The new permit, issued only to the Department of the Navy, dealt exclusively with those Solid Waste Management Units (SWMUs) that remained on the former NWIRP Calverton property and any corrective actions that may have been required to address each site. In 2012, an application for a RCRA Permit renewal was submitted.

Site 2 is listed as Classification 2 in the NYSDEC Registry of Inactive Waste Disposal Sites. Sites listed under Classification 2 represent a significant threat to public health and/or the environment and require action.

1.2 FACILITY LOCATION

The Navy's Calverton facility is located in Suffolk County on Long Island, approximately 70 miles east of New York City (Figure 1-1). Formerly engaged in the manufacture of aircraft parts and assemblies, the property known as NWIRP Calverton, New York was a government-owned, contractor-operated installation leased by the Navy to the Northrop Grumman Corporation (NGC) until 1996. Since that time, all the property contained within the perimeter fence, with the exception of three noncontiguous parcels of land totaling approximately 209 acres are being retained by the Navy to continue Installation Restoration Program activities (Site 2, Site 7, and Site 6A/Site 10B/Southern Area), have been conveyed to the Town of Riverhead (Figure 1-2).

1.3 FACILITY HISTORY

NGC leased NWIRP Calverton and was the sole operator of the facility from its construction in the early 1950s until it closed in February 1996. In 1996, the land was returned to Navy control. In September 1998, the majority of the land within the developed section of the facility was transferred to the Town of Riverhead for economic redevelopment. Under Congressional legislation (PL 103-337) the Navy was authorized to convey most of the fenced area to the Town of Riverhead for redevelopment and most of the runway buffer lands outside of the fenced area to NYSDEC for conservation and public recreation. One parcel of buffer land, consisting of approximately 140 acres was designated by the Legislation for transfer to the Veterans Administration that manages the adjacent Calverton National Cemetery.

Because of the need for additional environmental investigations and potential remediation, the Navy retained four parcels of land within the developed section, totaling 358 acres that consisted of Parcel A (Site 2), Parcel B (Sites 6A and 10B), Parcel C (Sites 7 and 10A), and Parcel D (Sites 1 and 9). In 1999, 2,935 acres of undeveloped land outside of the fenced area was transferred to NYSDEC and 140 acres of land outside the fenced area was transferred to the Veterans Administration.

In 2007, Parcel C1 and Parcel D were transferred to the Town of Riverhead (Figure 1-2). Parcel C1 (Site 10A – Jet Fuel Systems Laboratory [2 acres]) was transferred with residual contamination underneath a concrete slab and requires future inspections to ensure protection of human health. Parcel D (Sites 1 –

Northeast Pond Disposal Area and 9 - ECM [145 acres]) was transferred without environmental restriction.

The remaining sites to be addressed under the Environmental Restoration (ER) Program at NWIRP Calverton areas consist of Site 2, Site 7, Site 6A, and Site 10B.

1.4 PREVIOUS INVESTIGATIONS

Previous investigations at the site consisted of the following:

- SI (Halliburton, NUS [HNUS], 1992)
- RFI (HNUS, 1995)
- Phase 2 RI (Tetra Tech, 2001)

This RFI report has been prepared to re-evaluate Site 2 soils as well as the groundwater quality at Site 2 and downgradient of Navy property since the implementation of onsite interim remedial actions (See section 2.2). These remedial actions are expected to have reduced or eliminated potential risk to human health and achieved compliance with applicable state standards. Prior to this investigation, there are no current soil data to confirm the effectiveness of the interim remedial actions and a portion of site soil has not been previously investigated; therefore, additional data was collected to determine the nature and extent of soil contamination. Additionally, onsite groundwater data was investigated to determine whether the Site 2 Source Area is a continuing source of groundwater contamination and to determine the nature and extent of onsite and offsite groundwater contamination.

This RFI testing program was presented in the Uniform Federal Policy Sampling and Analysis Plan (UFP-SAP) (Tetra Tech, 2011).

1.5 SUMMARY OF FIELD ACTIVITIES

Field activities conducted during the RFI are summarized as follows. A detailed description of field activities is presented in Section 3.0 of this report.

- Temporary well installation with groundwater sampling at various depth intervals and analysis for Volatile Organic Compounds (VOCs).
- Soil sampling at shallow and deep depths and analysis for VOCs, Polychlorinated Biphenyls (PCBs), Polycyclic Aromatic Hydrocarbons (PAHs), and Metals.
- Installation of Piezometers and Staff Gauges and two rounds of water level readings.
- Installation of permanent monitoring wells and analysis for VOCs.

2.0 SITE BACKGROUND

2.1 SITE DESCRIPTION AND PHYSICAL SETTING

Site 2 – Fire Training Area is located on the eastern side of a 9 acre clearing in the south-central portion of the former NWIRP Calverton Facility (Figure 1-2 and 2-1). A small embankment up to 4 feet high is located along the eastern edge of the training area. Two dirt access roads are located along the southern and eastern edge of the Site. The 9 acre clearing is surrounded by woodlands.

2.2 SITE HISTORY

The Fire Training area was used by Northrop Grumman and Navy crash rescue crews as a training area since 1955, and possibly as early as 1952. Activities at the Fire Training Area consisted of clearing an area up to 100 feet or more in diameter and enclosing it with an earthen berm. A layer of water was then placed within the bermed area. Waste fuels, oils, and waste solvents (including heating fuels that contained PCBs) were floated on the water, ignited, and then extinguished. The IAS reported that up to 450 gallons of waste solvent (non-chlorinated and chlorinated) were mixed with up to 2,100 gallons of waste fuel per year for use in the training exercises. Waste oils and solvents were stored onsite, in a 6,000-gallon partially buried tank located north of the Fire Training Area. Aircraft sections were sometimes placed in the area to simulate actual crash conditions. After 1975, waste solvents were reportedly no longer mixed with the waste fuels and oils to be ignited (NEESA, 1986).

In 1982 and 1983, two spills of waste oil were reported at the Fire Training Area, including an unknown quantity of liquid released in 1982 from the 6,000 gallon tank. As a result of these two spills, the entire Fire Training Area was upgraded. An 80 foot diameter concrete burn ring was installed at the southeast portion of Site 2 (Figure 2-1) to contain the waste oil and water used in the training exercises. Piping in the area was modified to prevent spills (NEESA, 1986). A 1,000-gallon aboveground storage tank (AST) was installed 75 feet north of the concrete ring to replace the 6,000-gallon storage tank in the early 1980s (NEESA, 1986). The 1983 spill consisted of approximately 300 gallons of waste No. 2 fuel oil. In 1987, contaminated soils from both spills were removed and disposed offsite by Marine Pollution Control. Monitoring wells were installed in these two areas to monitor potential groundwater contamination resulting from the spills. Floating free product was identified in several of these monitoring wells.

To remove residual free product from the soil, a groundwater recovery well and oil-water separation system was installed at the Fire Training Area in December 1987 (HNUS, 1992). This system consisted both of an active and a passive free product recovery system. The active recovery system included a groundwater pumping well, an oil recovery well, and an oil/water separator tank. A single groundwater recovery well extracted water forming a localized depression in the water table and a second well extracted floating free product. The passive recovery system consisted of hydrophobic filters located in shallow wells. Free product from the well was periodically hand bailed. The active recovery system was

shut down in 1993 because the free product layer was not thick enough to be efficiently recovered. Passive free product recovery continued until 1996. By December 1996, approximately 325 gallons of petroleum product had been removed from this site (Tetra Tech, 2005). The 1,000 gallon above ground storage tank was removed in mid-1990. The fire training activities ceased in 1996.

A pilot study was conducted in 1995 to assess the effectiveness of air sparge/soil vapor extraction (AS/SVE) technology to remove chemical of concern (COC) in site soil and groundwater. Construction of the AS/SVE system began in June 1995 and was completed in August 1995. The AS/SVE system consisted of three basic components: an air injection system, an air extraction system, and an off gas treatment system. Air was injected into an area which included the free product and the groundwater with highest contaminant concentrations and was then extracted and passed through carbon units prior to discharge. The locations of the soil vapor extraction well and air injection wells are presented on Figure 2-2. The system was operated from August to December 1995. During this period, the vapor extraction system removed 46 pounds and 8 pounds of target chlorinated and non-chlorinated VOCs, respectively. Based on carbon dioxide measurements, up to 13,000 pounds of organics (as carbon) may have been destroyed by biological degradation during the trial. In general, 30 to 70 percent reductions in organic concentrations were measured in soils and groundwater during the trial. The reduction of organics in groundwater was initially in the range of 60 to 90 percent; however, a partial rebound in VOC and SVOC concentrations was noted after the trials ended.

The AS/SVE system continued to operate seasonally (March to December) until December 2000. Since startup in 1995, this system had contributed to the biodegradation of approximately 50,000 pounds of hydrocarbons, which is equivalent to approximately 8,400 gallons of diesel fuel (through December 2000) (Tetra Tech, 2001a). This system represented an Interim Remedial Action (IRM).

Based on the results of a subsurface soil investigation in 2005, the extent of waste/contaminated materials at Site 2 – Fire Training Area were delineated. Based on this delineation, it was recommended that an Engineering Evaluation and Cost Analysis (EE/CA) be conducted to evaluate remedial alternatives at Site 2. The EE/CA recommended a Non-Time Critical Removal Action (NTCRA) to remove and dispose Site 2 shallow petroleum-contaminated soil at an off-site landfill.

The shallow petroleum-contaminated soil removal action was initiated at Site 2 in October 2008. From October 2008 to June 2009, most of the contaminated soil, the AS/SVE system, and the concrete burn ring were removed. During the removal action, 10,860 tons of soil contaminated with petroleum (up to 6 feet below grade) and 546 tons (up to 2.2 feet below grade) of surficial coal were excavated and hauled off site. The excavation limits are presented on Figure 2-3. The AS/SVE system was also demolished, which entailed the abandonment of 16 air injection wells, 32 soil vapor extraction wells, and 20 free product recovery wells, as well as the removal of support equipment. After excavation, 1,100 pounds of calcium oxyhydroxide (Regenesis® Oxygen Releasing Compound [ORC] Advanced) was applied to the

excavation floor to accelerate degradation of organic compounds. The pit was then backfilled with clean fill, regraded, and vegetated.

Potential munitions of explosive concern (MEC) were encountered while conducting soil sampling field work in February 2010. Five pieces of suspected 20 millimeter (mm) projectiles were discovered on the ground surface within the area designated as “Supplemental Excavation Boundary” on Figure 2-3. In March 2010, Explosive Ordnance Disposal (EOD) technician inspected the materials and removed them from the site.

The munitions were mostly likely from a firing stop butt area for testing, sighting, and performing static target practice using an aircraft 20-mm cannon firing system also located on NWIRP Calverton. The static aircraft firing stop butt area was lined with 50 feet by 50 feet of soil from the floor to approximately 20 feet in height within a covered and wood-lined revetment. As the plant closed and the facilities were decommissioned, the aircraft firing stop butt was abandoned in place and the soil was removed (C.F. Braun, 1996). It is undocumented as to where the soil from the backstop was relocated.

In November 2010, a subsurface geophysical survey was conducted at Site 2. As of 2012, MEC and the supplemental PAH area soil removal are ongoing.

2.3 ECOLOGICAL SETTING

In 1997, an ecological setting evaluation was conducted (Tetra Tech, 2001b). Site 2 Parcel lies in an area of disturbed soil and ruderal (weedy) terrestrial vegetation that lacks sensitive ecological receptors capable of being significantly affected in an adverse manner by environmental contamination. The woodlands surrounding the Site 2 Source Area are classified as pine barrens. Wetlands and surface water are not present at the site, but are located hydraulically downgradient of the site. Transport of contaminants via groundwater migration is possible. However, groundwater contaminants are limited to VOCs and wetland and surface ecological receptors are not very sensitive to VOC contaminants, especially at the concentrations detected in groundwater.

A direct overland connection from the site to the wetlands or surface water is not present; therefore, contaminants such as PAHs and PCBs in site soil, which cause potential ecological risk, would not migrate to the wetlands and surface water. Habitat for tiger salamanders, a state-endangered species, has also been identified within the offsite wetlands and surface water.

2.3.1 Vegetation

Three plant communities cover Site 2. Vegetation in the clearing includes successional grasses and forbs, such as panic grass (Pacnicum lanuginosum), broomsedge (Andropogon viginicus), wild oats (Avena fatua), phragmites (Phragmites australis), fescues (Festuca sp.), quackgrass (Agropyron repens),

raspberries (Rubus sp.), pigweed (Amaranthus retroflexus), and yellow sweet clover (Melilotus officinalis). The vegetation is generally dense throughout.

The forest cover east, south, and west of the clearing is dominated by pitch pine (Pinus rigida) and oaks (primarily scarlet oak, Quercus coccinea) in roughly equal proportion. This forest cover is typical of the Long Island Pine Barrens. However, scrub oak (quercus ilicifolia), described as common throughout the Pine Barrens, is only sparingly present. The forest cover north of the clearing is dominated by red maple (Acer rubrum) and undergrown by dense patches of woody shrubs such as sweet pepperbush (Clethra alnifolia), honeysuckle (Lonicera sp.), and highbush blueberry (Vaccinium corymbosum). There are also dense but localized patches of ladyfern (Athyrium felix-femina). Such forest vegetation sometimes occurs in seasonally saturated wetlands, but it is also a common type of successional forest in areas of former human disturbance.

2.3.2 Wildlife

The grassy clearing provides good habitat for wildlife favoring forest edges, such as the whitetail deer (Odocoileus virginianus), northern bobwhite (Colinus virginanus), eastern kingbird (Tyrannus tyrannus), indigo bunting (Passerina cyanea), and song sparrow (Melospiza melodia) (Kircher, 1988). As expected, several whitetail deer were observed during the June 1997 site visit. A diversity of food types for wildlife are available, including dry seeds from the grasses in the field, nuts (acorns) from the oaks in the forest, and fleshy berries from the blueberry cover in the forest. The presence of the clearing, as well as several wide road tracks and firebreaks crossing the forest, render the entire forest in this part of NWIRP Calverton of poor value to forest interior wildlife such as neotropical birds. Waterfowl and other wildlife typical of areas with wetlands and open water are not expected to occur in this area because there are no wetlands or water on or near Site 2.

2.3.3 Wetlands

No areas on or adjoining Site 2 meets the technical criteria for delineation as wetlands (Environmental Library, 1987). Although several dense patches of phragmites occur in the open land west of the former fire training ring, they occur on disturbed upland soil rather than hydric (wetland) soil.

2.3.4 Aquatic Biota

There are no aquatic habitats, and hence no aquatic biota, on or close to Site 2.

2.3.5 Special Status Species

Information provided by NYSDEC and the New York Natural Heritage program indicates several New York State endangered and threatened animal species exist within NWIRP Calverton. The most notable species, tiger salamander (Ambystoma tigrinum), may occupy onsite ponds adjacent to Site 2. Other species include the northern cricket frog (Acris crepitans) and the least tern (Sterna antillarum).

Additional endangered and threatened plant species reside within the facility boundary and may be present at Site 2. According to the information supplied by NYSDEC, the wetland areas surrounding the Peconic River, including Swan Pond (Figure 2-4), include significant habitat for many New York State endangered and threatened animals and plants. Swan pond and portions of these wetland areas are downgradient of Site 2.

2.4 GEOLOGY

NWIRP Calverton lies within the Atlantic Coastal Plain Physiographic Province. Generally, this region can be characterized as an area of relatively undissected low-lying plains. The Atlantic Coastal Plain is underlain by a thick sequence of unconsolidated deposits. The surface topography has been created or modified by Pleistocene glaciations (Isbister, 1966). The facility is underlain by approximately 1,300 feet of unconsolidated sediments that consist of four distinct geologic units. These units, in order of descending elevation, are the Upper Glacial Formation, the Magothy Formation, the Raritan Clay Member of the Raritan Formation, and the Lloyd Sand Member of the Raritan Formation (McClymonds and Franke, 1972).

Based on previous subsurface investigations, Site 2 is underlain by three distinct lithofacies. The upper lithofacies ranges from 1 to 7 feet thick and consists of predominantly dark brown, brown, and orange, silty, fine-grained sand, with varying amounts of peat and clay. Soil-type fill encountered at the site is associated with the upper lithofacies. The middle lithofacies ranges from 54 to 78 feet thick and consists of light brown and tan fine-grained sand with varying amounts of medium-grained sand and pebbles. The middle lithofacies probably represents undisturbed glacial deposits. The lower lithofacies consists of gray, silty clay. The subsurface geology of Site 2 is consistent with that found in other areas of the facility.

2.5 HYDROGEOLOGY

The unconsolidated sediments that underlie NWIRP Calverton are generally coarse-grained with high porosities and permeabilities. These factors create aquifers with high yields and high transmissivities.

The Upper Glacial Formation, the Magothy Formation, and the Lloyd Sand are the major regional aquifers. The Upper Glacial and the Magothy aquifers are of principal importance in Suffolk County because of their proximity to the land surface. The Lloyd Sand is not widely exploited because of its depth (McClymonds and Franke, 1972).

The Upper Glacial aquifer is widely used as a source of groundwater in Suffolk County. The water table beneath the NWIRP lies within this aquifer. Porosities in excess of 30 percent have been calculated for the Upper Glacial aquifer in adjoining Nassau County, Long Island. The estimated value of hydraulic conductivity is 270 feet per day (feet/day).

The Magothy aquifer is widely used as a source of groundwater in Suffolk County. The most productive units are the coarser sands and gravels. The permeability of the Magothy is high; hydraulic conductivities have been calculated in excess of 70 feet/day.

The Upper Glacial and the Magothy aquifers are believed to be hydraulically interconnected and to function as a single unconfined aquifer. On-site well logs, previous hydrogeological investigations, and geologic mapping indicate that although clay lenses are present in both aquifers that may create locally confining and/or perched conditions, these lenses are not widespread and do not function as regional aquitards (McClymonds and Franke, 1972; Fetter, 1976).

The Raritan Clay has a very low permeability (approximately 3×10^{-5} feet/day) and hydrologically acts as a regional confining layer. The confining nature of this unit is believed to minimize local risk of contamination to the underlying Lloyd Sand aquifer (McClymonds and Franke, 1972).

The Lloyd Sand is potentially excellent aquifer that has not been extensively developed due to its depth and the abundant water available in the overlying aquifers. Estimated hydraulic conductivities for the Lloyd Sand range from 20 to 70 feet/day.

The Peconic River basin is the likely discharge point for the Southern portion of the NWIRP Calverton's groundwater in the shallow aquifer zones.

2.6 PREVIOUS INVESTIGATIONS

2.6.1 Initial Assessment Study (IAS)

An IAS was performed for the NWIRP Calverton in 1986 (Rogers, Golden, & Halpern, 1986). This study identified seven potential areas of concern, including Site 2.

2.6.2 Site Investigation (SI)

As a follow-up to the IAS, an SI was conducted at NWIRP Calverton (HNUS, 1992). The SI investigated seven sites, including Site 2. The sites identified can be classified as landfill-type sites or sites resulting from documented or suspected historical spills or leaks of fuels, oils, or solvents. Spills have been documented at Site 2. In addition, floating free product has been identified in monitoring wells.

2.6.3 RCRA Facility Investigation (RFI)

An RFI was conducted in 1994 and 1995 (HNUS, 1995). The conclusions from this investigation are summarized as follows:

- VOCs were detected at relatively high concentrations in Site 2 soil. The fire training pit is the most likely primary source area. Other relatively minor source areas were, or are, present at the

site including an area west of the fire training pit (based on groundwater data) and an area north of the fire training pit. VOCs detected in soil include solvents and fuel-related contaminants. Solvents detected include 2-butanone (5,900 micrograms per kilogram [µg/kg]), chloroethane (300 µg/kg) dichlorobenzene (900 µg/kg), tetrachloroethene (470 µg/kg), and 1,1,1-trichloroethane (9,900 µg/kg). Fuel-related contaminants detected include ethylbenzene (3,700 µg/kg), toluene (6,100 µg/kg), and Xylenes (85,000 µg/kg).

- A RCRA hazardous waste characteristic evaluation (40 Code of Federal Regulations [CFR] 261) of soil samples indicated that the material did not exhibit the Toxicity Characteristics. One soil sample was measured to have a flash point less than 140 degrees Fahrenheit, which is the threshold for the characteristic of ignitability. This sample, however, did not have a measurable British Thermal Unit (BTU) value, indicating that only trace levels of fuel-related chemicals are present and likely caused the measurable flash point.

- PCBs (3,640 µg/kg), pesticides (less than 100 µg/kg), and SVOCs, including PAHs and phthalates were detected in several soil samples.

- Metals including antimony (7.9 milligram per kilogram [mg/kg]), lead (290 mg/kg), and selenium (0.89 mg/kg) were detected in soil at concentrations greater than background levels.

- One drum was found on the surface of the site. The drum was placed in an overpack container during RFI field activities and was removed as a separate interim action. Despite an extensive geophysical survey of the site and test pit program, no other drums were found at Site 2.

- Groundwater testing during the initial RFI in 1994 and 1995 detected the following VOCs at concentrations above federal Maximum Contaminant Levels (MCLs) or New York groundwater quality standards: chloroethane (1,100 micrograms per Liter [µg/L]), 1,1-dichloroethane (1,200 µg/L), toluene (320 µg/L), 1,1,1-trichloroethane (140 µg/L), and xylenes (230 µg/L). By June 1997, the maximum detected fuel-related concentration was for xylenes (91 µg/L). The area of these detections was addressed by the pilot-scale AS/SVE system that operated between 1995 and 1997. The state groundwater standard for most VOCs is 5 µg/L. PCBs (18 µg/L), PAHs (3 µg/L), and lead (30 µg/L) were detected at concentrations above federal MCLs or state groundwater quality standards. Phthalates and pesticides were also detected at concentrations below these standards in several monitoring well samples. Based on the similarity between chemicals found in Site 2 soil and groundwater, it is likely that soil contaminants have affected groundwater.

- Floating free product has been identified at site 2. The location of the free product corresponds to the location of the most contaminated groundwater. Free product recover was an ongoing Northrop Grumman operation until 1996.

- The extent of soil contamination is adequately defined. The estimated areal extent of contaminated soil was 80,000 square feet. At an average depth of 8.2 feet, the estimated volume of contaminated soil was 25,000 cubic yards. This volume has been reduced significantly since the operation of the AS/SVE system (CF Braun, 1996).

- The horizontal and vertical extent of groundwater contamination had been adequately characterized except to the south (off-site) and east. This is based on the detection of VOCs in well FT-MW05S, the most southeastern monitoring well.

2.6.4 Phase 2 RCRA RFI

As a follow-up to the RFI, a Phase 2 RFI was conducted at Site 2 (Tetra Tech, 2001b). This RFI further investigated the eastern extent of onsite groundwater contamination and whether onsite groundwater has migrated offsite.

Based on the available data, the groundwater contamination is near the downgradient fence line. The groundwater contamination at Site 2 is not continuous and several pockets of discrete contamination are most likely present.

2.7 DATA GAPS

Groundwater: Currently, 13 onsite monitoring wells are sampled annually to evaluate groundwater quality at the Site 2 Parcel (Navy owned property). As of September 2010, there were several minor exceedances of NYSDOH MCLs, but no exceedances were identified in monitoring wells located at the edge downgradient of the Site 2 Parcel. However, these monitoring wells are widely spaced and may not fully describe the presence of onsite groundwater contamination and migration of contaminated groundwater off site. During the Phase 2 RI in 2001, temporary monitoring wells were installed at the downgradient edge of the Site 2 Parcel. Test results did not find evidence that the Site 2 Source Area (clearing) contamination had migrated off Navy property at that time.

In 2008, Suffolk County Department of Health Services (SCDHS) sampled groundwater at five off site locations that may be downgradient of the Site 2 Source Area (Figure 2-4). Groundwater grab samples were collected from six intervals at each location and analyzed for VOCs. The MCL of 5 µg/L was exceeded at two locations and provided evidence that contaminated groundwater from the Site 2 Source Area had, or is, migrating off site. Sampling location SL/G-5 had an MCL exceedance for trichloroethene (24 µg/L) at interval 30 to 35 feet below grade. Sampling location SL/G-3 had an MCL exceedance for

1,1dichloroethane (7.1 µg/L) at interval 30 to 35 feet below grade. The detected VOCs are consistent with contaminants detected at Site 2 Source Area. These MCL exceedances were detected in the 30 to 35 feet bgs depth interval, an indication that groundwater VOC contamination is predominantly in the 30 to 35 feet bgs depth interval in that area.

Offsite groundwater flow is not well understood. There is a series of man-made ponds, including McKay Lake and Swan Pond, and an irrigation pump for the golf course that may alter the direction of offsite groundwater flow from Site 2 Parcel. In particular, groundwater may flow around or under Swan Pond. Development of accurate potentiometric surface maps for offsite groundwater is needed to identify potential off property locations where Site 2 groundwater contamination may be present.

Subsurface Soil: Site 2 Source Area subsurface soil may be a continuing source of VOC contamination to the groundwater. There are no current analytical data available for deep soil (below 6 feet bgs) for Site 2 Parcel. The most recent analytical results for deep soil samples were collected during the evaluation of the AS/SVE treatment system in December 1995. Operation of the AS/SVE system reduced VOC concentrations in groundwater via volatilization and biodegradation and is also expected to have reduced VOC concentrations in soil. However, there are no soil data to support this assumption. In addition, previous soil investigations focused on the area of known contamination. Soil samples have not been collected in the western portion of the site, which may have also been used for fire training activities.

Shallow soils (up to 6 feet) were excavated at the Site 2 Source Area in 2008 and 2009; however, based on the 1994 RFI soil investigation, there are sampling locations outside the excavation limits that had contaminant concentrations greater than risk-based criteria, indicative of a potentially unacceptable level of risk. PAHs and PCBs were the primary COCs and were generally located within the AS/SVE treatment area and the shallow soil excavation. Chemical concentrations may have decreased via either AS/SVE treatment or natural attenuation and there are no current analytical data to confirm the effectiveness of the soil treatments.

Surface Soil: Surface soil (0 to 2 feet) may be a risk to human health. Based on historical information, the majority of the activities occurred at the south east portion of the site and six surface soil samples were collected from this area during the 1994 RFI, of which four surface soil samples are located outside of the 2008 and 2009 excavation boundary. Of the four surface soil samples, PAHs or PCBs were detected above EPA RSLs or protection of groundwater SSLs at three of surface soil locations. Surface soil did not contain VOCs above EPA RSLs or NYSDEC Soil Clean-up Levels for residential use. Metals were detected at all four locations, but at concentrations that were below background levels. Analytical results from previous investigations have been compiled in the UFP-SAP (Tetra Tech, 2011).

During the 2008 and 2009 excavation, five of the thirteen shallow sidewall samples were collected from a 1.5 to 2 foot interval. Other sidewall samples were collected from a depth of 2.5 feet to 4 feet below

ground surface. Out of the five samples collected, one sample contained concentrations of PAHs that exceeded NYSDEC Soil Clean-up Levels for residential use. The maximum concentration was benzo(b)fluroanthene at 1,400 µg/Kg versus 1,000 µg/Kg for the NYSDEC Soil Clean-up Levels for residential use. This sidewall sample was collected in front of MW02I and MW02S and excavation was not continued so the integrity of the monitoring wells could be maintained.

3.0 SOIL AND GROUNDWATER INVESTIGATION

This RFI field program was conducted from April 2011 to February 2012. The following activities were conducted at Site 2.

- Collection of 15 subsurface soil samples from 13 soil boring locations.
- Collection of 2 surface soil samples from 2 locations.
- Semi-annual groundwater sampling of Site 2 Monitoring Wells.
- Installation of 20 temporary wells downgradient of the Site 2 boundary. A total of 103 Groundwater samples were collected at four or more depths at each location and analyzed for VOCs.
- Installation of 4 piezometers on Navy property and 13 piezometers off of Navy property.
- Installation of 2 staff gauges on Navy property and 2 staff gauges off of Navy property.
- Collection of 2 rounds of water levels from new and existing piezometers, staff gauges, and monitoring wells located on and off of Navy property.
- Survey of all sampling locations and existing and new wells.

Soil sample and soil boring log sheets are presented in Appendix A. Groundwater field forms are presented in Appendix B. Well construction logs and survey data are presented in Appendix C. Chain of custody forms and analytical data are presented in Appendix D and Appendix E, respectively. Data validation letters are presented in Appendix F. Sampling log sheets, chain of custody forms, analytical results, and data validation letters for the 2012 semi-annual sampling of monitoring wells are located in the appendices of the Data Summary Report for 2011 Groundwater Investigation Activities.

3.1 SOIL BORINGS

Thirteen soil borings were installed within the Site 2 clearing to determine if deep and shallow contamination remains. Eight soil boring locations (FT-SB404, FT-SB405, and FT-SB408 through FT-SB413) were chosen in areas where contamination was previously identified but were treated by the AS/SVE IRM. The depth and analysis was also determined by previous sample data. Five soil boring locations (FT-SB401 through FT-SB403, FT-SB406 and FT-SB407) were chosen in areas outside of the AS/SVE IRM and removal area where there was no data. Samples were collected at the depth where Photoionization Detector (PID) measurements were the highest or where staining was present. If there was no presence of contamination, a sample was collected at 6 to 8 feet bgs. Samples were analyzed for VOCs, PAHs, PCBs, and metals. Soil boring locations are presented in Figure 3-1. Details of soil borings are presented in Table 3-1.

3.2 MONITORING WELLS

Groundwater sampling at 13 permanent monitoring wells was conducted using low flow sampling procedures in March 2011 and September/October 2011. A peristaltic pump was used for groundwater sample purging and collection activities, in combination with a continuous flow-through cell suitable for taking water quality measurements. Turbidity measurements were made using a separate field turbidity meter specifically designated to measure turbidity only. The turbidity sample was collected downstream of the flow through cell. Monitoring well locations are presented on Figure 2-4. Monitoring well details are presented on Table 3-2.

3.3 TEMPORARY WELLS

Seven temporary wells (FT-TW421 through FT-TW427) were installed downgradient of the Site 2 clearing in April 2011 and June 2011 to determine if this area is a continuing source of groundwater contamination and whether it has migrated off property. In October and December 2011, 13 additional temporary wells were installed (FT-TW428 through FT-TW440) to further investigate the horizontal extent of groundwater contamination. Temporary well locations are presented in Figure 2-4. Temporary well details are presented Table 3-3.

Groundwater grab samples were collected from temporary wells at various depth intervals (21 to 25, 31 to 35, 41 to 45, 51 to 55, and 61 to 65 feet bgs). Groundwater samples were collected through a stainless steel screen. Disposable polyethylene tubing was deployed to the center of the screen and a peristaltic pump was used to obtain the groundwater sample using low-flow sampling techniques. Groundwater samples were analyzed for VOCs.

3.4 PIEZOMETER AND STAFF GAUGE INSTALLATION

Seventeen piezometers and four staff gauges were installed south and east of Site 2 in order to create a more accurate groundwater potentiometric surface map. Water level readings at staff gauges located on McKay Lake, Swan Pond, and the un-named body of surface water provide data on how surface water is affecting the flow of groundwater.

Soil borings were initially drilled at piezometer locations to confirm the subsurface lithology and depths to ensure proper depths of each piezometer installation. Direct Push Technology (DPT) was used to install piezometers. Each piezometer was one inch in diameter. Shallow piezometers were installed with a 10-foot in length and 0.010-inch factory slotted screen. Intermediate piezometers were installed with a 5-foot in length screen and 0.010-inch factory slotted screen. Piezomteter and staff gauge locations are presented on Figure 3-2. Details of the Piezometer and staff gauge installation are presented in Table 3-4.

3.5 SITE CHARACTERISTICS

3.5.1 Geology

Based on previous field investigation, a continuous clay layer underlies Site 2 at a depth of approximately -27 feet MSL. Prior to the installation of the temporary wells, soil borings were installed to determine the depth of the clay layer in each area. This evaluation included two soil borings (FT-SB423 and FT-SB426) at two temporary well locations and twelve soil borings (FT-SB450 through FT-SB462) at each piezometer cluster to determine the shallow and intermediate depths of the well screen. The soil borings ranged in depth from 10 to 85 feet bgs. The geological cross section location map is presented in Figure 3-3. The geological cross sections are presented in Figure 3-4 and Figure 3-5.

Lithologic data collected from soil cores during this RFI and split spoon samples collected during the installation of existing Site 2 monitoring wells were used to interpret the subsurface lithology presented on the cross section. A top 2- to 4-foot layer consisted of organic material containing silty, sand with varying amounts of roots and peat. A layer of tan, brown, and gray fine- to medium-grained sand was located below the organic material and ranged from 70 to 85 feet thick on property and 50 to 55 feet thick off property. In addition, fine to medium sand with varying amounts of small to medium pebbles was recorded at two depth intervals at FTPZ462 and FTPZ456 within the tan, brown sand. A 2- to 8-foot thick layer of very fine grained sand containing trace amounts of silt is located below the fine- to medium-grained sand and overlays a gray, silty clay layer. The depth of the silty clay layer ranged from approximately 70 feet bgs on property to 50 feet bgs off property. Soil borings did not advance beyond 5 feet into the clay, so its thickness could not be determined.

3.5.2 Hydrogeology

Synoptic groundwater elevations were measured in new and existing piezometer, monitoring well, and staff gauge locations in December 2011 and February 2012. This data was used to generate groundwater potentiometric contour maps and provide information on groundwater flow and patterns.

Water-level measurements were completed on the same day, and no sooner than 24 hours after a significant precipitation event to minimize the precipitation effects on the data. Water level measurements were recorded to the nearest 0.01 foot and referenced to a top of casing notch or north side of the well casing. Water level data is presented in Table 3-5. Potentiometric maps for December 2011 and February 2012 are presented in Figure 3-6 and Figure 3-7, respectively.

Based on water level measurements collected from shallow monitoring wells in December 2011 and February 2012, groundwater flow at Site 2 is toward the southeast, with elevations ranging from 34 to 41 feet above msl. The Peconic River basin is the likely ultimate discharge point for groundwater in the shallow aquifer zones in the southern portion of the NWIRP Calverton.

4.0 NATURE AND EXTENT OF CONTAMINATION

Defining the nature and extent of contamination is a critical part of site characterization. By definition, the nature and extent of contamination relates to the characteristics of any contaminants that might be present and the size of the area affected. This section describes the nature and extent of contamination at Site 2 – Fire Training Area as defined by the results of sampling and laboratory analyses of soil and groundwater samples collected during the RFI field investigation.

Previous investigations at Site 2 indicated the presence of VOCs, PAHs, and PCB compounds in soil and groundwater. Waste fuels, oil, and waste solvents were used on site as part of activities at the Fire Training Area as discussed in Section 2.0. Waste oils and solvents were also stored onsite in a partially buried tank north of the Fire Training Area. Spills of waste oil occurred in 1982 and 1983 and contaminated soil from the spilled were removed and disposed. Previous remedial actions included the operation of a free product recovery system, operation of an AS/SVE system, and removal of shallow contaminated soils as discussed in Section 2.0.

During this RFI, surface and subsurface soil samples were collected from 13 soil borings and analyzed for VOCs, PAHs, PCBs, metals, and/or miscellaneous inorganics. Groundwater samples were collected from 13 monitoring wells and 20 temporary wells located on and off of Navy property. The groundwater samples were analyzed for VOCs. Soil and groundwater sampling locations are shown on Figure 3-1 to 3-2.

4.1 SCREENING CRITERIA

To provide some perspective on the discussion of the nature and extent of contamination, the soil and groundwater data were compared to USEPA screening criteria developed for evaluating risks to human receptors. Also, soil and groundwater were compared to New York State criteria. In addition, concentrations of inorganics in soil were compared to background concentrations.

4.1.1 USEPA Soil and Groundwater Screening Levels for Human Health

USEPA has developed a set of screening levels for soil and groundwater. The screening levels were developed by combining toxicity factors [reference doses (RfD) and cancer slope factors (CSF)] with "standard" exposure scenarios to calculate target analyte concentrations corresponding to fixed levels of risk [i.e., a Hazard Quotient (HQ) of 1 for non-carcinogens or an incremental lifetime cancer risk (ILCR) of 1×10^{-6}, whichever occurs at a lower concentration]. The exposure scenarios for soil include direct ingestion and dermal exposure by child and adult receptors (residential screening levels) and direct ingestion and dermal exposure by adult receptors (industrial screening levels). USEPA screening levels for non-carcinogens are based on an HQ of 1; however, to account for the potential cumulative effects of

several chemicals affecting the same target organ or producing the same adverse non-carcinogenic effect, the values have been adjusted based on an HQ of 0.1.

4.1.2 USEPA Maximum Contaminant Level

MCLs represent a legal threshold limit on the concentration of a hazardous substance that is permissible in drinking water under the Safe Drinking Water Act (SDWA). USEPA first determines how much of the contaminant may be present with no adverse health effects. This level is called the Maximum Contaminant Level Goal (MCLG); MCLGs are non-enforceable public health goals. The legally enforced MCL is then set as close as possible to the MCLG. The MCL for a contaminant may be higher than the MCLG if small quantities of a contaminant are difficult to measure, there are no available treatment technologies, or if USEPA determines that the costs of treatment would outweigh the public health benefits of a lower MCL.

4.1.3 USEPA Groundwater Volatilization Screening Level

USEPA groundwater screening levels for evaluating the vapor intrusion to indoor air identify chemical concentrations in groundwater that may adversely affect the indoor air quality of a building. The values correspond to a target cancer risk level of $1x10^{-6}$ or a hazard index of 0.1 for carcinogens and noncarcinogens, respectively. The screening levels assume a subsurface attenuation factor of 0.001 from groundwater concentrations to indoor air concentrations.

4.1.4 New York State Criteria

NYSDEC Remedial Program Soil Cleanup Objectives for unrestricted use are based on the lowest value for the protection of groundwater, ecological resources, and public health. New York State Department of Health (NYSDOH) MCLs are for the protection of drinking water sources.

4.1.5 Background Data Evaluation

The background data set is used to assist in determining whether detected concentrations are attributable to site-related activities or natural/anthropogenic sources. The background analysis for soil is presented in Appendix G.

4.2 SUMMARY OF ENVIRONMENTAL MEDIA

Analytical results are presented in Tables 4-1 to 4-8. The tag map for soil (Figure 4-1) presents the detected results. The tag maps for monitoring wells (Figure 4-2) and temporary wells (Figure 4-3 and Figure 4-4) present the detected results for VOCs compared to NYSDOH MCLs.

4.2.1 Surface Soil

Two additional surface soil samples were collected during this investigation to supplement four surface soil samples (FT-SS-01, FT-SS-03, FT-SS-06, and FT-SB101) from the 1994 RFI. Surface soil sample

analytical results are presented in Table 2 of the UFP-SAP (Tetra Tech, 2011). Of those four samples PAHs or PCBs exceeded NYSDEC Soil Clean-up Levels for residential use at three locations (FT-SS-03, FT-SS-06, and FT-SB101). One of the 1994 surface soil locations (FT-SS-03) was re-sampled (SB411) during the 2011 investigation and found that concentrations of PAHs and PCBs were less than NYSDEC Soil Clean-up Levels for residential use. To evaluate the representativeness of the 2011 investigation, this data is compared to the 1994 results (FT-SS-01, FT-SS-06, and FT-SB101). This evaluation indicates that the 2011 sample results are concurrent with 1994 sample results and are summarized as follows.

Surface Soil Maximum and Average Concentrations

	1994 Maximum Concentration (mg/kg)	1994 Average Concentration (mg/kg)	2011 Maximum Concentration (mg/kg)	2011 Average Concentration (mg/kg)
Benzo(a)anthracene	0.890	0.350	ND	ND
Benzo(a)pyrene	0.960	0.380	0.420	0.217
Benzo(b)fluoranthene	1.20	0.503	0.580	0.299
Dibenzo(a,h)anthracene	0.180	0.060	0.079	0.041
Indeno(1,2,3-cd)pyrene	0.940	0.353	0.260	0.134
Total PCBs	0.564	0.217	0.046	0.034

The two surface soil samples were collected from 0 to 2 feet bgs from FTSB411 and FTSB413. Based on visual observation and PID results from the 2011 investigation, there was no field evidence of significant shallow contamination in the site 2 clearing. The 2011 surface soil samples are located in the southeast portion of the site which is the general direction travel for surface water runoff from the cleared portion of the site. A summary of surface soil results including frequency of detections are presented in Table 4-1. Table 4-2 presents the detected concentrations in surface soil compared to screening criteria. Analytical results for surface soil are presented on Figure 4-1. Both surface soil samples were analyzed for PAHs and PCBs. The surface soil sample from FT-SB413 was also analyzed for VOCs, metals, and miscellaneous inorganics. VOCs were not detected in the surface soil sample. In the sample from FT-SB413, concentrations for only two PAHs exceeded USEPA soil screening levels (SSLs) based on groundwater protection. Concentrations of PAHs were greater in the sample from FT-SB411 and several concentrations exceeded soil screening levels based on direct contact and groundwater protection. Concentrations of PAHs detected in the two surface soil samples did not exceeded the NYSDEC soil cleanup levels. The sample from FT-SB411 had detected concentration (46 µg/kg) of one PCB (Aroclor-1260) that exceeded the USEPA SSL based on groundwater protection (5.2 µg/kg). However PCB concentrations were less than the USEPA direct contact Regional Screening Level (RSL) (220 µg/kg) and the NYSDEC soil cleanup level (100 µg/kg). The concentrations of metals from FT-SB413 were generally less than background concentrations. Concentrations of arsenic (0.826 mg/kg), cobalt (0.642 mg/kg), and iron (3,110 mg/kg) exceeded USEPA SSLs based on groundwater protection and the arsenic concentration also exceeded the USEPA direct contact RSL; however, concentrations of arsenic and iron

were less than background concentrations. Although a statistical background comparison could not be conducted for cobalt, the detected concentration of cobalt was less than the maximum background concentration (4.9 mg/kg). Concentrations of miscellaneous inorganics were less than screening levels.

4.2.2 Subsurface Soil

Subsurface soil samples were collected between 2 to 17 feet bgs from 13 locations. A summary of subsurface soil results including frequency of detections are presented in Table 4-3. Table 4-4 presents the detected concentrations in subsurface soil compared to screening criteria. Analytical results for subsurface soil are presented on Figure 4-1. Several soil sampling locations were chosen because previous samples had concentrations that exceeded criteria. The analytical data collected during the RFI was dependent on what analytes previously exceeded criteria.

Subsurface soil samples from FT-SB401 to FT-SB403, FT-SB406, and FT-SB407 are located outside of the area of previous remedial actions; therefore, these samples were analyzed for all parameters (VOCs, PAHs, PCBs, and metals). Subsurface soil samples from these locations were collected from 4 to 6 feet bgs or 6 to 8 feet bgs. No VOCs and PCBs were detected in these samples. Only one PAH (benzo[b]fluoranthene) was detected in sample FT-SB-402-0608 at a concentration (1.4 µg/kg) well below the minimum USEPA and NYSDEC screening level (35 µg/kg). Maximum concentrations of arsenic (1.58 mg/kg), cobalt (1.24 mg/kg), iron (4,420 mg/kg), manganese (5.28 mg/kg), and selenium (0.55 mg/kg) exceeded USEPA SSLs based on groundwater protection and the arsenic concentration also exceeded the USEPA direct contact RSL. Concentrations of metals were less than background concentrations, where available. Although a statistical background comparison could not be conducted for cobalt, the maximum detected concentration of cobalt (1.24 mg/kg) was less than the maximum background concentration (4.9 mg/kg). Selenium was not detected in background samples; however, it was only detected in one site sample at a concentration (0.55 mg/kg) slightly exceeding the USEPA SSL based on groundwater protection (0.4 mg/kg).

Subsurface soil samples located within the area of previous remedial actions were analyzed for VOCs and/or PAHs and PCBs. VOCs were generally not detected. Methylene chloride, a common laboratory contaminant, was detected at concentrations less than screening levels at one location. Xylenes (m+p-xylenes and o-xylene) were detected at concentrations exceeding USEPA groundwater protection SSLs and NYSDEC soil cleanup levels in one deep subsurface soil sample (FT-SB-408-1517) located in the clearing in the southeast portion of the site. PAH concentrations from this sample and an adjacent deep subsurface soil sample (FT-SB-409-1315) exceeded USEPA screening levels; however, PAH concentrations did not exceed NYSDEC screening levels. PAHs were not detected in subsurface samples in the vegetated area southeast of the cleared area, indicating that PAH contamination is limited to the cleared southeast portion of the site. PCBs were not detected in any sample.

4.2.3 Monitoring Wells

Groundwater samples were collected from 13 monitoring wells during two sampling rounds (March 2011 and September 2011) and analyzed for VOCs and volatile gases. A summary of groundwater results from monitoring wells including frequency of detections are presented in Table 4-5. Table 4-6 presents the detected concentrations in groundwater from monitoring wells compared to screening criteria. Analytical results for monitoring wells are presented on Figure 4-2. VOCs were infrequently detected in the monitoring wells. Several VOCs were detected in the groundwater samples from FT-MW02S from both sampling rounds. Monitoring well FT-MW02S, screened at 10.5 to 20.5 feet bgs, is located just southeast of the cleared portion of the site. The groundwater sample from the immediate depth at this well (FT-MW02I), screened at 70 to 80 feet, had a single VOC detection. Detected concentrations of VOCs from FT-MW02S were generally lower in the second round of sampling. The following VOCs present in samples from FT-MW02S exceeded USEPA tap water screening levels, USEPA MCLs, or NYSDOH MCLs: 1,4-dichlorobenzene, cis-1,2-dichloroethene, ethylbenzene, m+p-xylenes, o-xylene, trichloroethene, and vinyl chloride. The March 2011 sample from FTMW02S, only m+p-xylenes (7.7 µg/L) and o-xylene (16 µg/L) exceeded NYSDOH MCLs (5 µg/L) and trichloroethene (12 µg/L) exceeded USEPA MCLs (5 µg/L) and NYSDOH MCLs (5 µg/L). The concentration of trichloroethene (3.2 µg/L) also exceeded the USEPA tap water screening level (0.26 µg/L) in FT-MW03S, but did not exceed the USEPA MCL (5 µg/L) or NYSDOH MCL (5 µg/L). Several monitoring wells (FT-MW02I, FT-MW05I, and FT-MW06I) had a single VOC detection for chloroform slightly exceeding the USEPA tapwater screening level; however, chloroform concentrations were less than the USEPA MCL and NYSDOH MCL.

Concentrations of ethylbenzene, tetrachloroethene, and trichloroethene in FT-MW02S exceeded USEPA groundwater volatilization screening levels. The chloroform concentration (0.79 µg/L) in one sample from FT-MW05I slightly exceeded the groundwater volatilization screening level (0.71 µg/L).

The volatile gas, methane, was present in two monitoring wells (FT-MW02S and FT-MW08I) of six wells analyzed during the March 2011 sampling round.

4.2.4 Temporary Wells

Groundwater samples were collected from 20 temporary wells screened at several depth intervals (21 to 25, 31 to 35, 41 to 45, 51 to 55, 61 to 65, and 71 to 75 feet bgs). A summary of groundwater results from temporary wells including frequency of detections are presented in Table 4-7. Table 4-8 presents the detected concentrations in groundwater from temporary wells compared to screening criteria. Analytical results for temporary wells are presented on Figure 4-3 and Figure 4-4. Previous data indicated that groundwater VOC contamination was predominantly in the 30 to 35 feet bgs depth interval. VOCs were infrequently detected in the temporary wells. Most wells had only one or two detected VOCs. Samples from five temporary wells screened at 31 to 35 feet bgs (TW421, TW425, TW434, TW435, and TW439) and one temporary well screened at 41 to 45 feet bgs (TW439) had three or more detected VOCs. These

wells are located south and southeast of the site. Concentrations of 1,1-dichloroethane, chloroform, methylene chloride, and trichloroethene exceeded USEPA tap water screening levels, USEPA MCLs, or NYSDOH MCLs in one or more groundwater samples. Concentrations of 1,1-dichloroethane in two samples and chloroform in 18 samples exceeded the USEPA tap water screening levels, but were less than USEPA MCLs or NYSDOH MCLs. Concentrations of methylene chloride, a common laboratory contaminant, exceeded the USEPA MCL and NYSDOH MCL in two samples, but were less than the USEPA tap water screening level. Trichloroethene concentrations exceeded the USEPA tap water screening level (0.25 µg/L) in eight samples, but only exceeded the USEPA MCL (5 µg/L) and NYSDOH MCL (5 µg/L) in five samples. The greatest trichloroethene concentrations (16 to 49 µg/L) were present in adjacent temporary wells (TW421, TW434, and TW435). The trichloroethene concentration from a well (TW436) immediately west of these locations was nondetected and the trichloroethene concentration (6.2 µg/L) from a well (TW422) immediately east of these locations only slightly exceeded the MCL. The trichloroethene concentration (5.2 µg/L) in one well (TW428) located south of TW421, TW434, and TW435 slightly exceeded the MCL.

Chloroform and dichlorodifluoromethane concentrations slightly exceeded groundwater volatilization screening levels in a few temporary wells, generally at the two deepest screened intervals. Chloroform concentrations exceeded groundwater volatilization screening levels in four temporary wells screened from 51 to 55 feet and 61 to 65 feet bgs. Dichlorodifluoromethane concentrations exceeded groundwater volatilization screening levels in two temporary wells screened from 26 to 30 feet bgs (FT-GW433) and 51 to 55 feet and 61 to 65 feet bgs (FT-GW432). Trichloroethene concentrations exceeded groundwater volatilization screening levels in four temporary wells screened from 21 to 25 and 31 to 35 feet bgs.

Similar VOCs were detected in both the temporary wells and monitoring wells. Higher concentrations of trichloroethene were detected in the temporary wells (maximum of 49 µg/L) than the monitoring wells (maximum of 12 µg/L). The maximum trichloroethene concentration was detected in monitoring well FT-MW02 screened at 10.5 to 20.5 feet bgs located just southeast of the cleared portion of the site. The temporary wells FT-TW421, FT-TW434, and FT-TW435 within the vegetated area south and southeast of the cleared area indicated the maximum trichloroethene concentrations slightly southwest of monitoring well FT-MW02 at 31 to 35 feet bgs.

5.0 CHEMICAL FATE AND TRANSPORT ANALYSIS

Knowledge of a contaminant's potential to migrate and persist in an environmental medium is critical when evaluating the potential for a chemical to elicit an adverse human health or ecological effect. This section contains information on various aspects of contaminant fate and transport and the chemical properties affecting contaminant migration at NWIRP Calverton Site 2. Sections 5.1 and 5.2 contain a general discussion of the various chemical and physical properties of contaminants detected at Site 2. Section 5.3 reviews the potential for chemicals to persist in the environment or to biodegrade or undergo other transformations. Section 5.4 presents a discussion of contaminant migration. Section 5.5 presents an overall summary.

5.1 CHEMICAL AND PHYSICAL PROPERTIES IMPACTING FATE AND TRANSPORT OF ORGANIC CHEMICALS

Table 5-1 presents the physical and chemical properties of the organic chemicals detected at Site 2, which were identified as exceeding screening criteria in Section 4.0. These properties can be used to estimate the environmental mobility and fate of site contaminants. The properties that are discussed include the following:

- Specific gravity
- Vapor pressure
- Water solubility
- Henry's Law constant
- Octanol/water partition coefficient (Kow)
- Organic carbon partition coefficient (Koc)
- Mobility index

Literature values for water solubility, Kow, Koc, vapor pressure, Henry's Law constant, bioconcentration factor (BCF), mobility index, and specific gravity from the scientific literature are presented in Table 5-1, when available. A discussion of the environmental significance of each of these parameters follows.

5.1.1 Specific Gravity

Specific gravity is the ratio of the density of a given volume of pure chemical at a specified temperature (usually 20 degrees Celsius [°C]) to the density of the same volume of water at a given temperature (usually 4 °C). Its primary use is to determine whether a chemical will have a tendency to float or sink in water if it is present as a pure chemical or at very high concentrations. Chemicals with a specific gravity greater than 1, including PAHs, will tend to sink if present as a pure liquid. If a large enough spill of these compounds occurs, these chemicals may migrate as a bulk liquid and will mix with or sink into the aquifer. Chemicals with a specific gravity less than 1, including monocyclic aromatics, will tend to float. If a large enough spill of these compounds occurs, these chemicals will migrate through the soil as a bulk liquid,

but instead of going into solution, the majority of the release may remain a discrete layer on the water table surface.

This physical characteristic becomes important only when the chemicals are at very high concentrations and are liquid when they are in pure phase. No analytes were detected at sufficiently high concentrations to speculate that they may currently be present in soil or groundwater as dense non-aqueous phase liquids (DNAPLs).

5.1.2 Vapor Pressure

Vapor pressure provides an indication of the rate at which a chemical volatilizes from both soil and water. It is of primary importance at environmental interfaces such as surface soil/air and surface water/air. Volatilization is not as important when evaluating contaminated groundwater and subsurface soils that are not exposed to the atmosphere. Vapor pressures for ketones and halogenated aliphatics are generally many times greater than vapor pressures for PAHs and phthalate esters. Chemicals with greater vapor pressures are expected to enter the atmosphere much more readily than chemicals with lower vapor pressures. Volatilization is not significant for most inorganics. Volatilization is a significant loss process for VOCs in surface soil. However, VOCs were not detected in surface soil; therefore, volatilization from surface soil is not currently an important loss mechanism at this site.

Concentrations of chloroform, dichlorodifluoromethane, ethylbenzene, tetrachloroethene, and trichloroethene detected in groundwater at the site from monitoring wells and temporary wells exceeded screening criteria for vapor intrusion. Buildings are not present at the site. However, if buildings are constructed, vapors from groundwater may affect indoor air quality in buildings at Site 2.

5.1.3 Water Solubility

The rate at which a chemical is leached from a waste deposit by infiltrating precipitation is proportional to its water solubility. More soluble chemicals are more readily leached than less soluble chemicals. The water solubilities presented in Table 5-1 indicate that VOCs are usually several orders of magnitude more water soluble than PAHs. Therefore, VOCs are the compounds most frequently detected in groundwater. It is possible that leaching from soil contributed to the concentrations of VOCs detected in groundwater.

5.1.4 Henry’s Law Constant

Both vapor pressure and water solubility are useful in determining volatilization rates from groundwater. The ratio of these two parameters (Henry's Law constant) is used to calculate the equilibrium chemical concentrations in the vapor (air) phase versus the liquid (water) phase for the dilute solutions commonly encountered in environmental settings. In general, chemicals having a Henry's Law constant of less than 1×10^{-5} atm-m^3/mole, such as PAHs, should volatilize very little and be present only in minute amounts in

the atmosphere or soil gas. For chemicals with a Henry's Law constant greater than 5 x 10^{-3} atm-m^3/mole (i.e., VOCs), volatilization and diffusion in soil gas could be significant.

5.1.5 Octanol/Water Partition Coefficient

K_{ow} is a measure of the equilibrium partitioning of chemicals between octanol and water. A linear relationship between the K_{ow} and the uptake of chemicals by fatty tissues of animal and human receptors has been established. It is also useful in characterizing the sorption of compounds by organic soils where experimental values are not available. PAHs are several orders of magnitude more likely to partition to fatty tissues than the more water-soluble VOCs. The K_{ow} is also used to estimate water-to-fish tissue BCFs in aquatic organisms.

5.1.6 Organic Carbon Partition Coefficient

The K_{oc} indicates the tendency of a chemical to adhere to organic matter contained in soils. Many VOCs have relatively low K_{oc} values and tend to be fairly mobile in the environment. Chemicals with high K_{oc} values generally have low water solubilities and vice versa. This parameter may be used to infer the relative rates at which the more mobile chemicals are transported in groundwater. Chemicals such as PAHs are relatively immobile in soil and are preferentially bound to the soil. These compounds are not subject to groundwater transport to the same extent as compounds with higher water solubilities. However, these immobile chemicals can be transported by erosional processes when they occur in surface soils. Several factors affect the measured value of K_{oc}. Values of K_{oc} usually decrease with increasing temperature. The fine silt and clay fraction of soil may have a greater tendency to absorb chemicals because they often have a higher concentration of organic matter (hence, a higher number of adsorption sites per unit volume).

5.1.7 Mobility Index

The mobility index (MI) is a quantitative assessment of mobility that uses water solubility (S), vapor pressure (VP), and the Koc (Laskowski, 1983). It is defined as:

MI = log ([S*VP]/Koc)

A scale to evaluate MI as presented by Ford and Gurba (1984) is:

Relative MI	Mobility Description
> 5	extremely mobile
0 to 5	very mobile
-5 to 0	slightly mobile
-10 to - 5	immobile
< -10	very immobile

Of the organic chemicals detected at Site 2, VOCs generally have MIs greater than 0 and are considered very mobile. Lighter molecular weight PAHs, such as naphthalene, have MIs ranging from -5 to 0 and are considered slightly mobile. Heavier molecular weight PAHs (e.g., benzo[a]pyrene) are classified as very immobile, having MIs less than -10.

5.2 CHEMICAL AND PHYSICAL PROPERTIES IMPACTING FATE AND TRANSPORT OF INORGANIC CHEMICALS

Table 5-2 presents the physical and chemical properties of the inorganic chemicals detected at Site 2, which were identified as exceeding screening criteria and background concentrations in Section 4.0. The solubility and mobility of inorganics are strongly influenced by their valence state(s) and mineral forms present in soils (e.g., silicates, hydroxides, oxides, carbonates, etc.). The solubility of a metal also depends on pH, redox potential (Eh), temperature, and other ionic species in solution (the Debye Huckel theory). Nearly all metals are more soluble at lower water pH values (e.g., less than 5.0).

The soil-water distribution coefficient (Kd) for inorganic constituents is the ratio of the concentration adsorbed on soil surfaces to the concentration in water. Kds for metals vary over several orders of magnitude because the Kd is dependent on the size and charge of the ion and the soil properties governing exchange sites on soil surfaces. Overall, inorganics with lower Kd values have greater mobilities.

5.3 CHEMICAL PERSISTENCE AND DEGRADATION PROCESS

Degradation and other transformation processes that affect the site contaminants are discussed in this section, including hydrolysis, biodegradation, photolysis, and oxidation/reduction reactions.

The following general classes of compounds were detected in soil and groundwater at Site 2 at concentrations exceeding screening criteria and/or background concentrations and are discussed below:

- Monocyclic aromatics
- Halogenated aliphatics
- PAHs
- Metals

5.3.1 Monocyclic Aromatics

Two monocyclic aromatics (m+p-xylenes and o-xylene) were detected above screening criteria in subsurface soil and four monocyclic aromatics (1,4-dichlorobenzene, ethylbenzene, m+p-xylenes, and o-xylene) were detected above screening criteria in groundwater.

Ethylbenzene and xylenes have specific gravities less than that of water. These compounds are typically found in fuels. If a large enough fuel spill occurs, these compounds may move through the soil column as a bulk liquid until they reach the water table. There, instead of going into solution, the majority of the release may remain as a discrete fuel layer on the water table surface, with some of the material going into solution at the water/fuel interface.

Monocyclic aromatic compounds such as ethylbenzene and xylenes are not considered persistent in the environment, particularly in the comparison with chemicals such as PCBs and pesticides. Monocyclic aromatics are subject to degradation via the action of both soil and aquatic microorganisms. The biodegradation of these compounds in the soil matrix is dependent on the abundance of microflora, macronutrient availability, soil reaction (pH), temperature, etc.

These compounds are amenable to microbial degradation; however, it is not anticipated that degradation will occur at an appreciable rate, although macronutrient availability at the site is not known. In the event that these compounds discharge to surface water bodies, volatilization and biodegradation may occur rapidly. Additional environmental degradation processes such as hydrolysis and photolysis are considered to be insignificant fate mechanisms for monocyclic aromatics in aquatic systems (Mabey et al., 1982).

5.3.2 Halogenated Aliphatics

Eight halogenated aliphatics (chloroform, cis-1,2-dichloroethene, 1,1-dichloroethane, dichlorodifluoromethane, methylene chloride, tetrachloroethene, trichloroethene, and vinyl chloride) were detected above screening criteria in groundwater. Photolysis and oxidation reactions are not considered to be significant degradation mechanisms for this class of compounds. Limited hydrolysis of saturated aliphatics (i.e., alkanes) may occur, but it does not appear to be a significant degradation mechanism for unsaturated species (i.e., alkenes) (Mabey et al., 1982).

Under certain conditions, volatilization is a significant fate process for these compounds. Volatilization is only significant at the air-soil or air-water interface. Compounds such as chloroform volatilize rapidly to the atmosphere from soil or surface water due to low soil adsorption.

5.3.3 PAHs

Several PAHs were detected above screening criteria in surface soil and subsurface soil. PAHs are generally regarded to be very persistent in the environment. PAHs have very low solubilities, vapor pressures, and Henry's Law constants and high Kocs and Kows. The lower molecular weight PAHs (e.g., acenaphthene, fluorene, and naphthalene) are more environmentally mobile than the higher molecular weight PAHs (e.g., benzo(a)pyrene, benzo(a)anthracene, and chrysene) and are more likely to leach to groundwater. The high molecular weight PAHs are less mobile and tend to adhere to soil particles.

Therefore, PAHs in soil and sediment are much more likely to bind to soil and be transported via mass transport mechanisms than to go into solution. The lower molecular weight PAHs are much more water soluble than the heavier PAHs (by 2 to 5 orders of magnitude) and consequently are expected to be detected in the groundwater more frequently and at higher concentrations.

PAHs in soil are much more likely to bind to soil and to be transported via erosion and surface water runoff than to be solubilized. PAHs are subject to slow degradation via aerobic bacterial metabolism but may be relatively persistent in the absence of microbial populations or macronutrients such as phosphorus and nitrogen. Bioconcentration of PAHs in aquatic organisms is much greater for higher molecular weight compounds than lower molecular weight compounds. PAHs can be bioaccumulated from water, sediments, or lower organisms in the food chain.

Landspreading applications have indicated that PAHs are highly amenable to microbial degradation in soil. The rate of degradation is influenced by temperature, pH, oxygen concentrations, initial chemical concentrations, and moisture. Photolysis, hydrolysis, and oxidation are not important fate processes for the degradation of PAHs in soil (Agency for Toxic Substances and Disease Registry [ATSDR], 1995).

The most important fate processes of PAHs in water are photo oxidation, chemical oxidation, and biodegradation. PAHs do not contain functional groups that are susceptible to hydrolytic action, and hydrolysis is considered to be an insignificant degradation mechanism. The rate of photodegradation is influenced by water depth, turbidity, and temperature. Benzo(a)pyrene and chrysene are reported to be resistant to photodegradation. PAHs may also be oxidized by chlorination and ozonation and may be metabolized by microbes under oxygenated conditions.

5.3.4 Metals

Metals are highly persistent environmental contaminants. They do not biodegrade, photolyze, hydrolyze, etc. The major fate mechanisms for metals are adsorption to the soil matrix (as compared to being part of the soil structure) and bioaccumulation.

The mobility of metals is influenced primarily by their physical and chemical properties, in combination with the physical and chemical characteristics of the soil matrix. Factors that assist in predicting the mobility of inorganic species are the soil/pore water pH, soil/pore water Eh, and cation exchange capacity. The mobility of metals generally increases with decreasing soil pH and cation exchange capacity.

Because inorganics are frequently incorporated into the soil matrix and remain bound to particulate matter, they also migrate from the source areas via bulk movement processes (erosion). There are some instances however where metals are found at such concentrations or in such forms (i.e., oxidation states) that they may migrate in solution. Metals are also more mobile under acidic or basic conditions. In these

cases, it is possible for metals to migrate vertically through the soil column and reach the groundwater. Therefore, the metals detected in groundwater samples may represent the total of dissolved metals and metals adhering to any suspended soil material that may be present in the samples. Because metals are naturally occurring substances, they were detected in all media at Site 2.

5.4 CHEMICAL MIGRATION

This section presents a brief overview of contaminant fate and transport pathways for several major chemical classes detected at Site 2.

5.4.1 Volatile Organic Compounds

VOCs are typically considered to be fairly soluble with a low capacity for retention by soil organic carbon; therefore, these are the organic compounds most frequently detected in groundwater. These types of chemicals may migrate through the soil column after being released by a spill event or by subsurface waste burial as infiltrating precipitation solubilizes them. Some fraction of these chemicals is retained by the soil, but most will continue migrating downward to the water table. At that time, migration occurs primarily lateral with the hydraulic gradient. Again, some portion of the chemical may be retained by the saturated soil.

Based on the results of the soil analyses, there was little VOC contamination in soil. VOC contamination was detected in the groundwater. As indicated in the discussion of the mobility index, VOCs are generally more soluble in water than other chemicals and have a low capacity for retention by soil organic carbon. Therefore, VOCs are typically the most frequently detected organic chemicals in groundwater. These types of chemicals may migrate through the soil column after they are released by a spill event or by subsurface waste burial as infiltrating precipitation solubilizes them. Some fraction of these chemicals is retained by the soil, but most will continue migrating downward to the water table. At that time, migration occurs primarily laterally with the hydraulic gradient. Again, some portion of the chemical may be retained by the saturated soil.

5.4.2 Polycyclic Aromatic Hydrocarbons

The presence of PAHs in surface soil and subsurface soil is likely related to the use of waste fuels, oil, and waste solvents on site. PAHs are generally considered to be fairly immobile chemicals in the environment. They are large molecules with high organic carbon partition coefficients and low solubilities when compared to the VOCs. These compounds, when found in the soil, generally do not migrate vertically to a great extent. Instead, they are more likely to adhere to soil particles and be removed from the site via surface runoff and erosional processes.

5.4.3 Inorganics

Because metals are frequently incorporated into the soil matrix and remain bound to particulate matter, they also migrate from the source areas via bulk movement processes (erosion). There are some instances, however, where these metals are found at such concentrations or in such form as to be able to migrate to solution. It is possible that industrial activities could saturate all available exchange sites in soil and, hence, a metal may be mobilized. Metals are also more mobile under acidic conditions. Finally, a metal solution may be utilized in some industrial applications. In these cases, it is possible for metals to migrate vertically through the soil column and reach the groundwater. Therefore, the metals detected in groundwater samples may represent the total of dissolved metals and metals adhering to any suspended soil material that may be present in the samples.

Because metals are naturally occurring substances, they were detected in all media in Site 2, generally within established background levels.

5.5 SUMMARY

The primary source of contamination at Site 2 is from waste fuels, oil, and waste solvents used during site activities. VOCs were detected infrequently in the surface and subsurface soil. VOCs were detected in the groundwater at Site 2 at concentrations that exceeded screening levels. Vapors from groundwater entering indoor air may be a concern at the site if buildings are constructed on site. PAHs were detected in soil and groundwater at concentrations greater than screening criteria. PAHs have limited mobility in soils and tend to remain bound to soil particles. Metals are naturally occurring chemicals and the levels of the metals were generally consistent with established background levels.

6.0 HUMAN HEALTH RISK ASSESSMENT

This section presents the Human Health Risk Assessment (HHRA) for Site 2 – Fire Training Area at NWIRP Calverton. The objective of the HHRA is to determine whether detected concentrations of chemicals within the study areas pose a significant threat to potential human receptors under current and/or future land use. The potential risks to human receptors were estimated based on the assumption that no actions were taken to control contaminant releases.

USEPA and NYSDEC guidance documents were used to develop the framework for the baseline HHRA:

- Conducting Human Health Risk Assessments Under the Environmental Restoration Program (Navy, 2001).
- Navy Policy on the Use of Background Chemical Levels (Navy, 2004).
- U.S. Navy Human Health Risk Assessment Guidance (Navy, 2008)
- Risk Assessment Guidance for Superfund: Volume I, Human Health Evaluation Manual (Part A) (USEPA, 1989).
- Human Health Evaluation Manual, Supplemental Guidance: Standard Default Exposure Factors (USEPA, 1991a).
- Distribution of Preliminary Review Draft: Superfund's Standard Default Exposure Factors for the Central Tendency and Reasonable Maximum Exposure (USEPA, 1993a).
- Exposure Factors Handbook. (USEPA, 1997a).
- Calculating Upper Confidence Limits for Exposure Point Concentrations at Hazardous Waste Sites (USEPA, 2002a).
- Guidance for Characterizing Background and Chemical Concentrations in Soil for Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Sites (USEPA, 2002b).
- Risk Assessment Guidance for Superfund, Volume I: Human Health Evaluation Manual (Part E, Supplemental Guidance for Dermal Risk Assessment) (USEPA, 2004).

- Guidelines for Carcinogen Risk Assessment (USEPA, 2005a).

- Supplemental Guidance for Assessing Susceptibility from Early-Life Exposure to Carcinogens (USEPA, 2005b).

- Risk Assessment Guidance for Superfund, Volume I: Human Health Evaluation Manual (Part F, Supplemental Guidance for Inhalation Risk Assessment) (USEPA, 2009a).

- New York State Brownfield Cleanup Program, Development of Soil Cleanup Objectives, Technical Support Document (NYSDEC, 2006a).

The HHRA is structured and reported according to the guidelines of the Risk Assessment Guidance for Superfund (RAGS), Human Health Evaluation Manual, Part D: Standardized Planning, Reporting, and Review of Superfund Risk Assessments (RAGS Part D) (USEPA, 2001).

An HHRA provides the framework for developing risk information necessary to assist in developing potential remedial alternatives for a site. A HHRA consists of five components: data evaluation, exposure assessment, toxicity assessment, risk characterization, and uncertainty analysis.

Three major aspects of chemical contamination and environmental fate and transport must be considered to evaluate potential risks: (1) contaminants with toxic characteristics must be found in environmental media and must be released by either natural processes or by human action; (2) potential exposure points must exist; and (3) human receptors must be present at the point of exposure. Risk is a function of both toxicity and exposure. If any one of these factors is absent for a site, the exposure pathway is incomplete, and no potential risks are considered to exist for human receptors.

6.1 DATA EVALUATION

Data evaluation, the first component of a baseline HHRA, is a medium-specific task involving compilation of analytical data as the first step. The second step and main objective of data evaluation is to develop a medium-specific list of chemicals of potential concern (COPCs) that will be used to quantitatively and/or qualitatively determine potential human health risks for site media. COPCs are selected based on a toxicity screen (i.e., a comparison of site contaminant concentrations to conservative toxicity screening values) and a background screen (i.e., a comparison of site concentrations to background concentrations).

6.1.1 Data Usability

Validated data collected as a consequence of environmental investigations described in detail in Section 3 were used to assess risks to potential human receptors. The samples specifically evaluated in the HHRA are listed in Appendix H.1. Fixed base analytical results for the target analytes lists for the field investigations were used in the quantitative risk evaluation. Groundwater samples were collected from both temporary and permanent monitoring wells. As discussed in Section 4 the analytical results for samples from the temporary wells are comparable to results for samples collected from the permanent monitoring wells. In addition samples collected from the temporary wells were not intended to be used in the HHRA. Consequently only analytical results from the permanent monitoring wells were used in this HHRA. Unfiltered results for groundwater are used to assess risks associated with this media. Data regarded as unreliable (i.e., qualified as "R" during the data validation process) were not used in the quantitative risk assessment. However, the results qualified as unreliable were detection limits (qualified “UR”), not positive detections. Therefore, it is unlikely that risks have been underestimated by the removal of the unreliable data from the data sets.

6.1.2 Derivation of Screening Criteria

The primary criteria used to identify COPCs are based on USEPA RSLs (2012a) and NYSDEC Restricted Use Soil Cleanup Objectives (2006b). The RSLs were developed and are maintained through a cooperative agreement between Oak Ridge National Laboratory (ORNL) and USEPA’s Office of Superfund, and are considered to be USEPA screening criteria. The RSLs are based on exposure pathways for which generally accepted methods, models, and assumptions have been developed (i.e., ingestion, dermal contact, and inhalation) for specific land-use conditions and do not consider ecological receptors. The screening concentrations based on the RSLs correspond to a systemic HQ of 0.1 for non-carcinogens or ILCR of 1×10^{-6} for carcinogens. The RSLs for non-carcinogens are based on an HQ of 1, whereas the screening concentrations used in the selection of COPCs were based on an HQ of 0.1 to account for the potential cumulative effects of several chemicals affecting the same target organ or producing the same adverse non-carcinogenic effect.

The NYSDEC Restricted Use Soil Cleanup Objectives used in this HHRA are based on residential exposures to soil and protection of groundwater. The Soil Cleanup objectives for residential exposures to soil correspond to an ILCR of 1×10^{-6} or a HQ of 1. Background concentrations of chemicals in rural souls and maximum acceptable levels of chemicals in soil are also considered. The Restricted Use Soil Cleanup Objectives used in this HHRA are different from the Unrestricted Use Soil Cleanup Objectives which also considered protection of ecological resources.

- Screening Levels for Soil

Screening concentrations based on the following criteria were used to select COPCs for surface soil and subsurface soil:

- USEPA RSLs for Residential Soil (2012a).
- NYSDEC residential soil cleanup objectives (2006b)

Maximum chemical concentrations in soil were also compared to USEPA risk-based SSLs and NYSDEC soil objectives levels for groundwater protection. The SSLs and NYSDEC soil objectives levels for groundwater protection were not used for the selection of COPCs for direct contact exposure; however, they do allow qualitative evaluation of the potential for chemical migration from soil to groundwater. Chemicals with concentrations exceeding the SSLs/NYSDEC soil objectives levels for groundwater protection may potentially migrate from the soil to groundwater in sufficient quantities to pose groundwater quality problems.

The risk-based screening levels used in the COPC selection for soil are presented in Table 6-1.

Screening levels for Groundwater

Screening levels based on the following criteria were used to select COPCs for groundwater:

- USEPA RSLs for Tapwater (2012a).
- USEPA Maximum Contaminant Levels (MCL) (2011)
- USEPA Groundwater Screening Levels for Evaluating Vapor Intrusion into Indoor Air from Groundwater (2012b).
- NYSDOH MCLs (2010)
- NYSDEC Surface Water and Groundwater Quality Standards and Groundwater Effluent Limitations (2008)
- USEPA National Recommended Water Quality Criteria (NRWQC) (2009b)

USEPA groundwater screening levels (GSL_{vapor}) for evaluating the vapor intrusion to indoor air were obtained from USEPA's Vapor Intrusion Screening Level (VISL) Calculator (USEPA, 2012b). The values correspond to a target cancer risk level of $1x10^{-6}$, or a hazard index of 0.1 for carcinogens and noncarcinogens, respectively. The GSL_{vapor} were derived to identify chemical concentrations in groundwater that may adversely affect the indoor air quality of a building overlying subsurface VOC contamination. The GSL_{vapor} assume a subsurface attenuation factor of 0.001 from groundwater concentrations to indoor air concentrations.

Maximum chemical concentrations in groundwater were also compared to NYSDEC Surface Water and Groundwater Quality Standards and Groundwater Effluent Limitations for Class C waters and USEPA NRWQC. The NYSDEC surface water criteria and USEPA NRWQC were not used for the selection of COPCs for direct contact exposure; however, they do allow qualitative evaluation of the potential for chemical migration from groundwater to surface water. Chemicals with concentrations exceeding the NYSDEC surface water criteria and USEPA NRWQC may potentially migrate from the groundwater to surface water in sufficient quantities to pose surface water quality problems.

Table 6-2 presents the screening criteria used for groundwater.

Essential Nutrients

Per USEPA guidance (1989) "Chemicals that are (1) essential human nutrients, (2) present at low concentrations (i.e., only slightly elevated above natural occurring levels), and (3) toxic at very high does (i.e., much higher than those that could be associated with contact at the site) need not be considered further in the quantitative risk assessment." Examples of such chemicals are magnesium, calcium, potassium, and sodium. Based on historical information available for the Site, no unusual use or disposal of these constituents occurred at the site under investigation. Soil concentrations greater than 1,000,000 mg/kg (i.e., pure mineral intake) would be required before receptor intake would exceed recommended daily allowance (RDA) and recommended daily intake (RDI) values. A review of currently available analytical data indicates that such concentrations have not been detected in soil at the Site.

Chemicals without Toxicity Criteria

Risk-based COPC screening levels are not available for some chemicals [e.g., m+p-xylenes, acenaphthylene, benzo(g,h,i)perylene, and phenanthrene]. In the COPC screening, m-xylene was used as a surrogate for m+p-xylene, acenaphthene was used as a surrogate for acenaphthylene, and pyrene was selected as a surrogate for benzo(g,h,i)perylene and phenanthrene.

Background Evaluation

In accordance with Navy policy (Navy, 2004) chemicals present at background concentrations were not retained as COPCs in this HHRA. Background data is only available for soils at NWIRP Calverton, consequently a background comparison was not performed for groundwater. The background evaluation was conducted in accordance with the following Navy guidance:

- Guidance for Environmental Background Analysis, Volume I: Soil. Prepared by Battelle Memorial Institute, Earth Tech, Inc., and Newfields for the Naval Facilities Engineering Command, Washington D.C., April 2002.

In the COPC selection process, if the results of the background evaluation indicated that chemical concentrations detected in Site soils did not exceed background concentrations, that chemical was not selected as a COPC and was not carried through the quantitative risk assessment. However, chemicals present at concentrations exceeding risk-based screening criteria but not selected as COPCs on the basis of background evaluations are further discussed in the risk characterization section. The results of the background comparison analysis for surface soil and subsurface soil are presented in Appendix G.

The elimination of chemicals as site-related COPCs on the basis of background follows Navy Policy on the Use of Background Chemical Levels (Navy, 2004). This document also presents the Navy's interpretation of the USEPA guidance provided in the document titled Role of Background in the CERCLA Cleanup Program (USEPA, 2002c) and details the methodology to be used in evaluating background under the Navy's Environmental Restoration and Base Realignment and Closure (BRAC) programs. Navy policy has been accepted by the USEPA as not contradicting the USEPA guidance (USEPA, 2002c). Navy policy applies to both the screening-level and baseline risk assessments and requires the following:

1. A clear and concise understanding of chemicals released from a site thus ensuring the Navy is focusing on remediating the release.

2. The use of background data in the screening-level risk assessment.

    a. The comparison of site chemical levels to risk-based screening criteria.
    b. The comparison of site chemical levels to background concentrations.
    c. The identification of site-related COPCs based on screening criteria comparisons AND background comparisons. Site-related COPCs are those chemicals with concentrations exceeding risk-based screening criteria AND background concentrations. To the extent possible, site-related COPCs are further evaluated quantitatively in the baseline risk assessment. (Non-site-related COPCs are further discussed in the risk characterization sections of the baseline risk assessments.)

3. The consideration of background in the baseline risk assessment.

    a. The calculation of risk estimates for site-related COPCs only.

b. The further evaluation of non-site-related COPCs in the risk characterization section only (e.g., the evaluation of chemicals detected at concentrations exceeding screening criteria but less than background concentrations). The Navy considers this evaluation to be consistent with USEPA's Role of Background in the CERCLA Cleanup Program (USEPA, 2002c).

4. The selection of site cleanup remedial goals at levels not less than background levels.

Additionally, cleanup levels should not be developed for chemicals not identified as COCs. As defined in the Navy guidance, COCs are site-related COPCs found to be the risk drivers in the baseline risk assessment and that may pose unacceptable human or ecological risks.

6.1.3 Decision Rules for Establishing COPCs

The following decision rules were used to select initial lists of COPCs for Site 2:

- A chemical detected in soil was selected as a COPC for soil if any detected chemical concentration exceeded the screening levels for soil and, for inorganics, if the background comparison indicates the site concentrations are statistically greater than the corresponding background concentrations.

- A chemical detected in groundwater was selected as a COPC for groundwater if the maximum detected concentration in any on-site monitoring wells exceeded screening levels for domestic use of a water supply or for the migration of VOCs from groundwater to the indoor air of a building.

Chemicals detected in any soil at concentrations greater than the screening levels but eliminated as COPCs on the basis of background comparisons are further discussed in the risk characterization section.

6.1.4 COPCs Selected for HHRA

COPCs were selected for surface soil, subsurface soil, and groundwater using the COPC screening levels described in Section 6.1.1. A discussion of the chemicals identified as COPCs and the rationale for COPC selection is provided in the following subsections. A discussion of nature and extent of the chemicals detected in site media is presented in Section 4.0 and is not repeated in this section. COPC selection information for each medium is presented in Tables 6-3 through 6-9. Chemicals retained as COPCs are presented in Table 6-10. RAGS Part D tables for COPC selection are included in Appendix H.2.

6.1.4.1 Surface Soil

A comparison of maximum detected surface soil concentrations to screening levels based on RSLs for residential exposures and NYSDEC residential soil cleanup objectives is presented in Table 6-3. The

following chemicals were detected at maximum concentrations exceeding direct contact COPC screening levels and were retained as COPCs for surface soil at Site 2:

- PAHs [benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, dibenzo(a,h)anthracene, and indeno(1,2,3-cd)pyrene].

Concentrations of all chemicals were less than the NYSDEC residential soil cleanup objectives. Concentrations of arsenic also exceeded the screening levels but were within site background levels and are not considered to be site related therefore arsenic was not retained as a COPC for direct contact with surface soil at Site 2.

A comparison of maximum detected surface soil concentrations to USEPA SSLs and NYSDEC soil objectives levels for groundwater protection is presented in Table 6-4. The following chemicals were detected in surface soil at maximum concentrations exceeding the screening levels for migration from soil to groundwater and were retained as COPCs for surface soil at Site 2:

- PAHs [benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, dibenzo(a,h)anthracene, indeno(1,2,3-cd)pyrene, and naphthalene]
- PCBs [Aroclor-1260)
- Metals [cobalt)

Concentrations of all chemicals were less than the NYSDEC soil objectives levels for groundwater protection. Concentrations of arsenic and iron also exceeded the screening levels but were within site background levels and are not considered to be site related; therefore these chemicals not retained as COPCs for migration from surface soil to groundwater at Site 2.

6.1.4.2 Subsurface Soils

A comparison of maximum detected subsurface soil concentrations to screening levels based on RSLs for residential exposures and NYSDEC residential soil cleanup objectives is presented in Table 6-5. The following chemicals were detected at maximum concentrations exceeding direct contact COPC screening levels and were retained as COPCs for surface soil at Site 2:

- PAHs [benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, and dibenzo(a,h)anthracene].

Concentrations of all chemicals were less than the NYSDEC residential soil cleanup objectives. Concentrations of arsenic also exceeded the screening levels but were within site background levels and

are not considered to be site related therefore arsenic was not retained as a COPC for direct contact with subsurface soil at Site 2.

A comparison of maximum detected surface soil concentrations to USEPA SSLs and NYSDEC soil objectives levels for groundwater protection is presented in Table 6-6. The following chemicals were detected in subsurface soil at maximum concentrations exceeding the screening levels for migration from soil to groundwater and were retained as COPCs for subsurface soil at Site 2:

- VOCs [m+p-xylenes and o-xylene]
- PAHs [benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, dibenzo(a,h)anthracene, indeno(1,2,3-cd)pyrene]
- Metals [cobalt, hexavalent chromium, manganese, and selenium)

Concentrations of all chemicals were less than the NYSDEC soil objectives levels for groundwater protection. Concentrations of arsenic and iron also exceeded the screening levels but were within site background levels and are not considered to be site related; therefore these chemicals were not retained as COPCs for migration from subsurface soil to groundwater at Site 2.

6.1.4.3 Groundwater

A comparison of maximum detected groundwater concentrations to screening levels based on RSLs for tap water, USEPA MCLs, and NYSDOH MCLs is presented in Table 6-7. The following chemicals were detected at maximum concentrations exceeding the COPC screening levels and were retained as COPCs for groundwater at Site 2:

- VOCs (1,4-dichlorobenzene, chloroform, cis-1,2-dichloroethene, ethylbenzene, m+p-xylenes, o-xylenes, trichloroethene, and vinyl chloride)

Trichloroethene, m+p-xylene, and o-xylenes were the only chemicals detected at concentrations exceeding the NYSDOH MCLs. Trichloroethene was the only chemical detected at concentrations exceeding the USEPA MCLs.

A comparison of maximum detected groundwater VOC concentrations to USEPA screening levels for chemical migration from groundwater through building foundations and into indoor air is presented in Table 6-8. The following chemicals were detected at maximum concentrations exceeding the COPC screening levels and were retained as COPCs for groundwater at Site 2:

- VOCs (chloroform, ethylbenzene, tetrachloroethene, trichloroethene, and vinyl chloride)

A comparison of maximum detected groundwater concentrations to NYSDEC Surface Water and Groundwater Quality Standards and Groundwater Effluent Limitations and USEPA NRWQC in Table 6-9. The following chemicals were detected at maximum concentrations exceeding the COPC screening levels and were retained as COPCs for groundwater at Site 2:

- VOCs (1,2-dichlorobenzene, 1,4-dichlorobenzene, tetrachloroethene, trichloroethene, and vinyl chloride)

The sum of the concentrations of 1,2-dichlorobenzene and 1,4-dichlorobenze at one location marginally exceeds the NYSDEC surface water criteria for total dichlorobenzenes. The NYSDEC surface water criterion for dichlorobenzenes is based on chronic effects to aquatic organisms. Consequently, dichlorobenzenes in groundwater discharging to surface water does is not anticipated to adversely affect human health but may affect aquatic organisms. Concentrations of tetrachloroethene, trichloroethene, and vinyl chloride exceed the USEPA NRWQC for consumption of water and organisms; the NRWQC for consumption of organisms only were not exceeded. However, surface water in the area is not used as a drinking water source; therefore, adverse human health effects are not anticipated as a consequence of tetrachloroethene, trichloroethene, and vinyl chloride in groundwater discharging to surface water.

6.1.4.4 Summary

Table 6-10 summarizes the chemicals retained as COPCs for surface soil, subsurface soil, and groundwater at the Site 2. RAGS Part D tables for COPC selection are included in Appendix H.2.

6.2 EXPOSURE ASSESSMENT

This portion of the risk assessment defines and evaluates, quantitatively or qualitatively, the type and magnitude of human exposure to the chemicals present at or migrating from a site. The exposure assessment is designed to depict the physical setting of the site, to identify potentially exposed populations and applicable exposure pathways, to calculate concentrations of COPCs to which receptors might be exposed, and to estimate chemical intakes under the identified exposure scenarios.

Actual or potential exposures at Site 2 were determined based on the most likely pathways of contaminant release and transport, as well as human activity patterns. A complete exposure pathway has three components: a source of chemicals that can be released to the environment, a route of contaminant transport through an environmental medium, and an exposure or contact point for a human receptor.

6.2.1 Conceptual Site Model

A conceptual site model (CSM) facilitates consistent and comprehensive evaluation of potential risks to human health by creating a framework for identifying the pathways by which human receptors may come in contact with environmental media contaminated by site activities. A CSM depicts the relationships among the following elements, which are necessary for defining complete exposure pathways:

- Site sources of contamination
- Contaminant release mechanisms and transport/migration pathways
- Exposure routes
- Potential receptors

The elements of the CSM (contaminant source, release mechanisms, transport/migration pathways, exposure routes, and potential receptors) establish the manner and degree to which a potential receptor may be exposed to chemicals present at the site. The degree of risk incurred by a potential receptor varies according to the means of exposure, the duration of exposure, and the specific chemical to which the receptor is exposed.

Section 2.0 presents a detailed discussion of the site location, site description, and site history for Site 2. This section summarizes the information in Section 2.0 as it applies to the HHRA. Sources of contamination, contaminant release mechanisms, transport and migration pathways, exposure routes, and potential receptors are defined. Table 6-11 provides a site-specific summary of the potential receptors evaluated for Site 2. A summary of the exposure routes addressed quantitatively for each human receptor is provided in Table 6-12. Figure 6-1 illustrates the CSM for Site 2.

6.2.1.1 Site Sources of Environmental Contamination

The Fire Training area was used by Northrop Grumman and Navy crash rescue crews as a training area since 1955, and possibly as early as 1952. Activities at the Fire Training Area consisted of clearing an area up to 100 feet or more in diameter and enclosing it with an earthen berm. A layer of water was then placed within the bermed area. Waste fuels, oils, and waste solvents (including heating fuels that contained PCBs) were floated on the water, ignited, and then extinguished. The IAS reported that up to 450 gallons of waste solvent (non-chlorinated and chlorinated) were mixed with up to 2,100 gallons of waste fuel per year for use in the training exercises. Waste oils and solvents were stored on-site, in a 6,000-gallon partially buried tank located north of the Fire Training Area. Aircraft sections were sometimes placed in the area to simulate actual crash conditions. After 1975, waste solvents were reportedly no longer mixed with the waste fuels and oils to be ignited. The fire training activities ceased in 1996.

In 1982 and 1983, two spills of waste oil were reported at the Fire Training Area, including an unknown quantity of liquid released in 1982 from the 6,000 gallon tank. As a result of these two spills, the entire Fire Training Area was upgraded. An 80 foot diameter concrete burn ring was installed at the southeast portion of Site 2 to contain the waste oil and water used in the training exercises. The 1983 spill consisted of approximately 300 gallons of waste No. 2 fuel oil. In 1987, contaminated soils from both spills were removed and disposed offsite by Marine Pollution Control.

6.2.1.2 Potential Contaminant Release Mechanisms and Transport/Migration Pathways

The soil and groundwater data collected at Site 2 indicate that past activities have released contaminants to the surrounding environment. Once chemicals have been released to an environmental medium (e.g., soil), they may migrate within that medium or migrate to another environmental medium (e.g., air). This section summarizes potential containment release mechanisms and transport pathways.

Contaminants in surface soil could migrate to air through wind erosion or through volatile emissions. Subsurface soil is not currently exposed at the site; however, if future construction occurs and brings subsurface soil to the surface, contaminants in subsurface soil could be transported into the air through wind erosion or through volatile emissions.

Contaminants can migrate from both surface and subsurface soil to groundwater through leaching of chemicals in the soil. Based on water level measurements collected from shallow monitoring wells in December 2011 and February 2012, groundwater flow is toward the southeast, with depths to groundwater ranging from 4 to 30 feet bgs. The Peconic River basin is the likely ultimate discharge point for groundwater in the shallow aquifer zones in the southern portion of the NWIRP.

6.2.1.3 Potential Current and Future Receptors of Concern and Exposure Pathways

Currently Site 2 is not being used for any activities. Access to the site is restricted by a fence and there are no structures on the site to attract trespassers or routine visitors. After the site investigation/remediation activities are completed Site 2 will be transferred to the town of Riverhead for economic redevelopment. Anticipated future use of the site is for nonresidential activities. However, for purposes of completeness, the baseline risk assessment will consider receptor exposure under residential, industrial, and recreational land use scenarios. Based on potential future land use, the following receptors may be exposed to contaminated environmental media within the study area:

- **Construction Workers** – A plausible receptor under future land use. No construction activities are currently planned for the study area. However, this receptor could be exposed to surface and subsurface soils (incidental ingestion; dermal contact), shallow groundwater (dermal contact), as well as airborne contaminants emanating from these media (inhalation). It should be noted that significant exposures by a construction worker to groundwater is unlikely because if a construction worker were to have prolonged contact with groundwater then he/she would most likely wear protective clothing

such as rubber boots and/or hip waders, which would limit the receptor's exposure. In addition, most excavation activities would utilize construction equipment such as a back hoe, which would limit a construction worker's exposure. Also, if significant groundwater was encountered during an excavation of a trench or foundation, the groundwater would most likely be pumped out of the excavation so that the construction activities could be completed.

- **Industrial Worker** – A plausible receptor under future land use. This receptor could be exposed to surface soil (incidental ingestion; dermal contact) and air (inhalation). Industrial worker exposure to subsurface soil is unlikely; however, because future construction could potentially bring subsurface soil to the surface, exposure to subsurface soil via incidental ingestion, dermal contact, and inhalation was evaluated for this receptor to aid in risk management decisions. If this receptor were to work in an on-site structure, this receptor could be exposed to VOCs migrating to the indoor air of a building from contaminated groundwater via vapor intrusion. However, industrial worker exposure to chemicals through vapor intrusion would likely be less intense than residential exposure to chemicals through vapor intrusion.

- **Recreational Users (Child and Adult)** – A plausible receptor under future land use. A recreational user may be exposed to potentially contaminated surface soil (0 to 2 feet bgs) (incidental ingestion; dermal contact), and air (inhalation). Recreational exposure to subsurface soil is unlikely; however, because future construction could potentially bring subsurface soil to the surface, exposure to subsurface soil via incidental ingestion, dermal contact, and inhalation was evaluated for this receptor to aid in risk management decisions.

- **Residents (Child and Adult) –** Given the anticipated future land use for much of Site 2 (nonresidential activities), residents are very unlikely future receptors. However, the hypothetical future residential scenario is typically evaluated in a risk assessment for decision-making purposes. For example, the need for deed restrictions at a site may be eliminated prior to site closure if minimal risks are estimated for residential receptors. It is assumed that a hypothetical resident may be exposed to surface soils (incidental ingestion; dermal contract), groundwater (ingestion, dermal contact), and air (inhalation). Also, hypothetical residents could be exposed to VOCs migrating from contaminated groundwater to the indoor air of a home. Receptor exposure to subsurface soil would only occur if subsurface soil was excavated and deposited on existing surface soil. Although this is an unlikely scenario, it is included in this HHRA for purposes of completeness and to assist the risk managers regarding the need for deed restrictions.

6.2.2 Central Tendency Exposure versus Reasonable Maximum Exposure

Traditionally, exposures evaluated in the HHRA were based on the concept of a reasonable maximum exposure (RME) only, which is defined as "the maximum exposure that is reasonably expected to occur at a site" (USEPA, 1989). However, subsequent risk assessment guidance (USEPA, 1992) indicates the need to address an average case or central tendency exposure (CTE).

To provide a full characterization of potential exposure, both RME and CTE scenarios were evaluated in the HHRA for Site 2. The available guidance (USEPA, 1993a) concerning the evaluation of CTE is limited. Therefore, professional judgment was exercised when defining CTE conditions for a particular receptor at a site.

6.2.3 Exposure Point Concentrations

The exposure point concentration (EPC), which is calculated for COPCs only, is an estimate of the chemical concentration within an exposure unit (EU). The EPC is assumed to be the concentration to which the receptor is exposed and is used to estimate exposure intakes. An EU is the area over which receptor activity is expected to occur.

No receptors were identified for current land use at Site 2. Future land use will involve some redevelopment of the site which most likely will result in the mixing of surface and subsurface soil, consequently surface soil and subsurface soil was combined into one EU for the purposes of calculating EPCs.

The following guidelines were used to calculate EPCs for each of the COPCs:

- If a dataset for surface/ subsurface soil or groundwater contained five or more samples and the COPC was detected in at least three samples then the 95-percent upper confidence limit (UCL) on the arithmetic mean, which was based on the distribution of the data set, was selected as the EPC. EPCs were calculated following USEPA's Calculating Upper Confidence Limits for Exposure Point Concentrations at Hazardous Waste Sites (2002a) and using USEPA's ProUCL software Version 4.1.00 (2010). If the UCL could not be calculated using ProUCL then the maximum detected concentration was used as the EPC.

- If a datasets for surface soil/subsurface soil or groundwater COPC contained four or fewer samples then the maximum detected concentration was used as the EPC.

- Non-detected values were evaluated in accordance with the ProUCL guidance.

Table 6-13 summarizes the EPCs used in this HHRA. ProUCL outputs are included in Appendix H.2. RAGS Part D Tables for the EPCs are presented in Appendix H.3.

6.2.4 Chemical Intake Estimation

The methodologies and techniques used to estimate exposure intakes are presented in this section. Intakes for the identified potential receptor groups were calculated using current USEPA risk assessment guidance and are presented in the risk assessment spreadsheets. Risk assessment results are presented using USEPA RAGS Part D table format. Assumptions regarding exposure are presented in Tables 3-14 and 3-15 for the RME and CTE scenarios, respectively.

Non-carcinogenic intakes were estimated using the concept of an average annual exposure. Carcinogenic intakes were calculated as incremental lifetime exposures, which assume a life expectancy of 70 years. The exposure assumptions reflect current USEPA guidance. The majority of the exposure assumptions used to estimate chemical intakes were based on default assumptions described in several USEPA guidance documents (e.g., USEPA 1989, 1991b, 1997a, and 2004) and NYSDEC guidance (2006a). The following paragraphs discuss the non-default receptor-specific exposure assumptions used in the risk assessment.

6.2.4.1 Incidental Ingestion of Soil

Direct physical contact with soil may result in the incidental ingestion of chemicals. Chemical intake for the incidental ingestion of soil is estimated in the following manner (USEPA, 1989):

$$\text{Intake} = \frac{(C_s)(IR)(FI)(EF)(ED)(CF)}{(BW)(AT)}$$

where:

Intake	=	intake of chemical from soil (mg/kg/day)
C_s	=	concentration of chemical in soil (mg/kg)
IR	=	ingestion rate (mg/day)
FI	=	fraction ingested from contaminated source (dimensionless)
EF	=	exposure frequency (days/yr)
ED	=	exposure duration (yr)
CF	=	conversion factor (1×10^{-6} kg/mg)
BW	=	body weight (kg)
AT	=	averaging time (days);
		for non-carcinogens, AT = ED x 365 days/yr
		for carcinogens, AT = 70 yr x 365 days/yr

Most of the exposure assumptions used to estimate chemical intakes from incidental ingestion of soil were based on default assumptions described in standard USEPA guidance and are summarized in Tables 6-14 and 6-15. The following paragraphs briefly discuss the non-default receptor-specific exposure assumptions for incidental ingestion of soil that were used in the HHRA.

The selected exposure frequency assumptions consider anticipated receptor activities at Site 2. It is assumed that construction workers assigned to future excavation projects at Site 2 are exposed to soil for 5 days a week over 50 weeks (250 days a year) for 1 year under the RME scenario. The exposure frequency for the CTE scenario was assumed to be 50 percent of the RME or 125 days a year. Child and adult recreational users are assumed to be exposed to soil two days a week during the warmer weather months (52 days a year) under the RME scenario and one day a week (26 days a year) under the CTE scenario.

6.2.4.2 Dermal Contact with Soil

Direct physical contact with soil may result in the dermal absorption of chemicals. Exposure associated with dermal contact with soil is estimated in the following manner (USEPA, 1989):

$$\text{Intake} = \frac{(C_s)(SA)(AF)(ABS)(CF)(EF)(ED)}{(BW)(AT)}$$

where:

Intake	=	amount of chemical absorbed during contact with soil (mg/kg/day)
C_s	=	concentration of chemical in soil (mg/kg)
SA	=	skin surface area available for contact (cm^2/day)
AF	=	skin adherence factor (mg/cm^2)
ABS	=	absorption factor (dimensionless)
CF	=	conversion factor (1×10^{-6} kg/mg)
EF	=	exposure frequency (days/year)
ED	=	exposure duration (year)
BW	=	body weight (kg)
AT	=	averaging time (days);
		for non-carcinogens, AT = ED x 365 days/year
		for carcinogens, AT = 70 years x 365 days/year

Most of the exposure assumptions used to estimate chemical intakes from dermal contact with soil were based on the default assumptions described in standard USEPA guidance and are summarized in Tables 6-14 and 6-15. The same exposure frequencies and durations recommended for the evaluation of incidental ingestion of soil were used to estimate chemical intakes for dermal contact with soil. The soil

adherence factors presented are those in Exhibits 3.3 and 3.5 of RAGS Part E. An absorption factor (ABS) of 0.13 was used for the carcinogenic PAHs (USEPA, 2004).

6.2.4.3 Inhalation of Air Containing Fugitive Dust/Volatiles Emitted from Soil

Intakes of both particulates and vapors/gases are calculated using the same equation, as follows (USEPA, 2009a):

$$EC = \frac{(C_{air})(ET)(EF)(ED)}{AT \times 24\ hrs/day}$$

where:

EC	=	exposure concentration (mg/m^3)
C_{air}	=	concentration of chemical in air (mg/m^3)
ET	=	exposure time (hours/day)
EF	=	exposure frequency (days/yr)
ED	=	exposure duration (yr)
AT	=	averaging time (hours);
	=	for non-carcinogens, AT = ED x 365 days/yr
	=	for carcinogens, AT = 70 yr x 365 days/yr

Some of the exposure assumptions used to estimate chemical intakes from inhalation of fugitive dusts/volatile emissions from surface and subsurface soil were based on default assumptions described in standard USEPA guidance and are summarized in Tables 6-14 and 6-15. The same exposure frequencies and durations used to estimate incidental ingestion of soil intakes were used to estimate exposure via inhalation of fugitive dust/volatile emissions for surface and subsurface soil.

The concentrations of chemicals in air resulting from emissions from soil are developed following procedures presented in USEPA Soil Screening Guidance (2002d). Chemical concentrations in air were calculated as follows:

$$C_{air} = C_{soil} \times \left[\frac{1}{PEF} + \frac{1}{VF} \right]$$

where:

C_{air}	=	chemical concentration in air (mg/m^3)
C_s	=	chemical concentration in soil (mg/kg)
PEF	=	Particulate emission factor (m^3/kg)
VF	=	volatilization factor (m^3/kg)

No volatile chemicals were retained as COPCs in surface and subsurface soil, therefore the above equation reduces to:

$$C_{air} = C_{soil} \times \left[\frac{1}{PEF} \right]$$

The particulate emissions factor (PEF) relates the concentration of the chemical in soil to the concentration of dust particles in air. A PEF value of 1.21 x 10^{+9} was used for the HHRA (NYSDEC, 2006). Because air emissions resulting from fugitive dust emissions settings will be different than dust emissions generated during construction activities, a separate PEF was used for construction activities. The PEF for construction workers (1.4 x 10^{+6} m^3/kg) was calculated using the equations presented in the supplemental SSL guidance document (USEPA, 2002d). A sample calculation showing how the PEF for construction activities was calculated is presented in Appendix H.3.

6.2.4.4 Ingestion of Groundwater

Ingestion of groundwater is expected to be limited to exposure that would occur under a future hypothetical residential scenario. Intakes associated with ingestion of groundwater were evaluated using the following equation (USEPA, 1989):

$$\text{Intake} = \frac{(C_w)(CF)(IR_w)(EF)(ED)}{(BW)(AT)}$$

where:

Intake	=	intake of chemical from groundwater (mg/kg/day)
C_w	=	concentration of chemical in groundwater (µg/L)
CF	=	conversion factor (0.001 mg/µg)
IR_w	=	ingestion rate for groundwater (L/day)
EF	=	exposure frequency (days/yr)
ED	=	exposure duration (yr)
BW	=	body weight (kg)
AT	=	averaging time (days);
		for non-carcinogens, AT = ED x 365 days/yr
		for carcinogens, AT = 70 yrs x 365 days/yr

USEPA standard default exposure assumptions were used to evaluate residential exposures to groundwater. A summary of the receptor-specific input values used to estimate chemical intakes from ingestion of groundwater are presented in Tables 6-14 and 6-15.

6.2.4.5 Dermal Contact with Groundwater

Hypothetical residential receptors were assumed to use groundwater for domestic purposes (e.g., bathing, showering, and dish washing) that can result in dermal exposure. Construction workers could contact groundwater during excavation activities. The following equation was used to assess exposures resulting from dermal contact with groundwater (USEPA, 2004):

$$DAD = \frac{(DA_{event})(EV)(ED)(EF)(SA)}{(BW)(AT)}$$

where:

DAD	=	dermally absorbed dose of chemical from water (mg/kg/day)
DA_{event}	=	dermally absorbed dose per event (mg/cm^2-event)
EV	=	event frequency (events/day)
ED	=	exposure duration (yr)
EF	=	exposure frequency (days/yr)
SA	=	skin surface area available for contact (cm^2)
BW	=	body weight (kg)
AT	=	averaging time (days);
		for non-carcinogens, AT = ED x 365 days/yr
		for carcinogens, AT = 70 yrs x 365 days/yr

Most of the exposure assumptions used to estimate chemical intakes from dermal contact with groundwater were based on default assumptions described in standard USEPA guidance and are summarized in Tables 6-14 and 6-15.

Dermal intakes for residents exposed to groundwater assumed total body exposure on a daily basis. There are no USEPA or NYSDEC default exposure assumptions for exposures to groundwater by construction workers. Consequently values were derived based on site-specific information and professional judgment. It was assumed that the construction worker will be exposed to groundwater 4 hours/day for 30 days a year under the RME scenario, and 2 hours/day for 15 days a year under the CTE scenario. A shorter exposure frequency is recommended for a construction worker exposed to groundwater than is recommended for exposure to soil because it is unlikely that a construction worker will have direct contact with groundwater on a daily basis during a construction project.

The absorbed dose per event (DA_{event}) was estimated using a non-steady-state approach for organic compounds and a traditional steady-state approach for inorganics. For organics, the following equations apply:

$$\text{If } t_{event} < t^{*}, \text{ then}: DA_{event} = (2)(K_p)(FA)(C_w)(CF)\left(\sqrt{\frac{6\,\tau\, t_{event}}{\pi}}\right)$$

$$\text{If } t_{event} > t^{*}, \text{ then}: DA_{event} = (K_p)(FA)(C_w)(CF)\left(\frac{t_{event}}{1+B} + 2\tau\left(\frac{1+3B+3B^2}{(1+B)^2}\right)\right)$$

where:

t_{event}	=	duration of event (hour/event)
t*	=	time to reach steady-state conditions (hour)
K_p	=	permeability coefficient from water through skin (cm/hour)
FA	=	chemical-specific fraction absorbed (dimensionless)
C_w	=	concentration of chemical in water (mg/L)
τ	=	lag time (hour)
π	=	Pi (dimensionless; equal to 3.1416)
CF	=	conversion factor (0.001 L/cm^3)
B	=	Dimensionless ratio of the permeability of the stratum corneum relative to the permeability across the viable epidermis (dimensionless)

Values for the chemical-specific parameters (t*, K_p, FA, τ, and B) were obtained from the current dermal guidance (USEPA, 2004, Exhibit B-3) and are presented in Table 6-16. If published values were not available for a particular compound, they were calculated using equations provided in the USEPA dermal guidance.

The following steady-state equation was used to estimate DA_{event} for inorganics:

$$DA_{event} = (K_p)(C_W)(t_{event})$$

The dermal permeability coefficient (K_p) values recommended in the USEPA dermal guidance (USEPA, 2004a) were used to calculate DA_{event} for inorganic COPCs.

6.2.4.6 Inhalation of Volatiles in Groundwater

If VOCs are present, groundwater exposure may also result in chemical intake through inhalation if groundwater is used as a domestic water supply or is exposed during construction activities. This exposure route is plausible for residential receptors that may be exposed while showering, bathing, washing dishes, etc. or for construction workers contacting shallow groundwater during excavation activities. For residential exposures chemical intakes from inhalation exposure due to the volatilization of COPCs in groundwater were estimated in the following manner (USEPA, 2009a):

$$EC = \frac{(C_{air})(ET)(EF)(ED)}{AT \times 24\ hrs/day}$$

where:

EC	=	exposure concentration (mg/m^3)
C_{air}	=	concentration of chemical in air (mg/m^3)
ET	=	exposure time (hours/day)
EF	=	exposure frequency (days/yr)
ED	=	exposure duration (yr)
AT	=	averaging time (days)
	=	for non-carcinogens, AT = ED x 365 days/yr
	=	for carcinogens, AT = 70 yr x 365 days/yr

For hypothetical child and adult residents, the chemical concentration in air resulting from the volatilization of COPCs during domestic groundwater use is calculated by using the following equation (USEPA, 1991b):

$$C_{air} = (C_{gw})(K)$$

where:

C_{air}	=	chemical concentration in indoor air, mg/m^3
C_{gw}	=	chemical concentration in groundwater, mg/L
K	=	Volatilization Factor, L/m^3

The same exposure frequencies, exposure times, and exposure durations used to estimate intake for dermal contact with groundwater are used to evaluate chemical intakes for inhalation of VOCs from domestic use of groundwater.

Construction workers may be exposed to COPCs that have volatilized from groundwater when an excavation exposes the shallow water table. The same exposure frequencies and times used to estimate intake from dermal contact with groundwater were used to evaluate intake from inhalation of VOCs from groundwater during construction.

No well-established models are available for estimating migration of volatiles from groundwater into a construction or utility trench. To estimate the EPCs for air in a construction trench, the HHRA used an approach suggested by the Virginia Department of Environmental Quality (VDEQ) (2012), which is based

on a combination of a vadose zone model (to estimate volatilization of gases from contaminated groundwater into a trench) and a box model (to estimate contaminant dispersion from the air inside the trench to the above-ground atmosphere). The VDEQ methodology is described in the following paragraphs.

The airborne concentration of a contaminant in a trench can be estimated using the following equation:

$$C_{air} = C_{GW} \times VF$$

where:

C_{air}	=	contaminant concentration in air in the trench (µg/m^3)
C_{GW}	=	concentration of contaminant in groundwater (µg/L)
VF	=	volatilization factor (L/m^3)

It was assumed that a construction project could excavate to 15 feet bgs or less. If the depth to groundwater at a site is less than 15 feet, the VDEQ model assumes that a worker would encounter groundwater when digging an excavation or trench. The worker would then be directly exposed to the groundwater. The worker would also be exposed to contaminants in the air inside the trench due to volatilization from groundwater pooling in the trench bottom.

The following equation is used to calculate the volatilization factor (VF) for a trench less than 15 feet deep:

$$VF = (Ki \times A \times F \times 10^{-3} \times 10^{4} \times 3{,}600)/(ACH \times V)$$

where:

Ki	=	contaminant's overall mass-transfer coefficient (cm/s)
A	=	trench area (m^2)
F	=	fraction of floor through which contaminant can enter (unitless)
ACH	=	air changes per hour (h^{-1}) = 360 h^{-1}
V	=	trench volume (m^3)
10^{-3}	=	conversion factor (L/cm^3)
10^4	=	conversion factor (cm^2/m^2)
3,600	=	conversion factor (seconds/hour)

Studies of urban canyons suggest that if the ratio of trench width, relative to wind direction and trench depth, is less than or equal to one, a circulation cell(s) will be created in the trench, limiting the degree of gas exchanged with the atmosphere. Thus, measured building ventilation rates lead to an assumption of two air changes per hour (ACH). If the width-to-depth ratio of the trench is greater than one, the air exchange between the trench and above-ground atmosphere is unrestricted, based on the ratio of trench depth to average wind speed, so the ACH is assumed to be 360. The exposure assessment in this HHRA assumes that the width-to-trench depth ratio is greater than one; thus, the ACH is set at 360.

K_i is calculated using the following equation:

$$K_i = 1/\{(1/k_iL) + [(RT)/(H_i\ k_iG)]\}$$

where:

K_i	=	containment's overall mass-transfer coefficient (cm/s)
k_iL	=	liquid-phase mass-transfer coefficient of i (cm/s)
R	=	ideal gas-constant (atm-m^3/mole-°K) = 8.2×10^{-5}
T	=	average system absolute-temperature (°K) (Default = 298°K)
H_i	=	Henry's Law Constant of i (atm-m^3/mole)
k_iG	=	gas-phase mass-transfer coefficient of i (cm/s)

Formulae for calculating k_iL and k_iG are as follows:

$$k_iL = (MWO_2/MW_i)^{0.5}\times(T/298)\times kL,O_2$$

where:

k_iL	=	liquid-phase mass-transfer coefficient of component i (cm/s)
MWO_2	=	molecular weight of oxygen (g/mole)
MW_i	=	molecular weight of component i (g/mole)
kL,O_2	=	liquid-phase mass-transfer coefficient of oxygen at 25°C (cm/s) = 0.002 cm/s

$$k_iG = (MWH_2O/MW_i)^{0.335}\times(T/298)^{1.005\times}kG,H_2O$$

where:

k_iG	=	gas-phase mass-transfer coefficient of component i (cm/s)
MWH_2O	=	molecular weight of water (g/mole)

kG,H_2O = gas-phase mass-transfer coefficient of water vapor at 25°C (cm/s) = 0.833 cm/s

Chemical properties were obtained from the USEPA RSL Table (2012a) and are presented in Table 6-17.

6.2.4.7 Assessing Cancer Risks from Early Life Exposures

USEPA's Supplemental Guidance for Assessing Susceptibility from Early-Life Exposure to Carcinogens (USEPA, 2005b) recommends making adjustments to the toxicity of carcinogenic chemicals that act via the mutagenic mode of action when evaluating early-life exposures. The guidance recommends using age-dependent adjustment factors (ADAFs) combined with age-specific exposure estimates when assessing cancer risks. In the absence of chemical-specific data, the supplement guidance recommends the following default adjustments, which reflect the fact that cancer risks are generally higher from early-life exposures than from similar exposures later in life:

- For exposures before 2 years of age (i.e., spanning a 2-year interval from the first day of birth until a child's second birthday), a 10-fold adjustment.
- For exposures between 2 and 16 years of age (i.e., spanning a 14-year time interval from a child's second birthday until their sixteenth birthday), a three-fold adjustment.
- For exposures after turning 16 years of age, no adjustment.

The adjustments were applied using the same method as that used by ORNL in the development of RSLs. Children were evaluated as two age groups, ages 0 to 2 years and ages 2 to 6 years, and adults were evaluated as two age groups, ages 6 to 16, and ages greater than 16 years old. Using this approach, the intakes for child and adult recreational users and hypothetical residents were calculated as follows:

$$Intake_{Child} = Intake_{(ages\ 0 – 2\ years)} \times 10 + Intake_{(ages\ 2 – 6\ years)} \times 3$$

$$Intake_{Adult} = Intake_{(ages\ 6 – 16\ years)} \times 3 + Intake_{(ages > 16\ years)}$$

The above approach was used only for those COPCs that are identified as mutagenic in the RSL table (e.g., trichloroethene and carcinogenic PAHs). Sample calculations showing how this approach was applied are included in Appendix H.3.

6.3 TOXICITY ASSESSMENT

The toxicity assessment weighs the evidence regarding the potential for exposure to chemicals to produce adverse effects in exposed receptors and, when possible, the assessment estimates the relationship between the exposure to a chemical and the increased likelihood and/or severity of adverse

effects. Quantitative estimates of the relationship between the magnitude and type of exposures and the severity or probability of human health effects are defined for the identified constituents of concern. Quantitative toxicity values determined during this component of the risk assessment are integrated with exposure assessment outputs to characterize the potential occurrence of adverse health effects for each receptor group.

The RfD is the toxicity value used to evaluate noncarcinogenic health effects for ingestion and dermal exposures. The reference concentration (RfC) is used to evaluate noncarcinogenic health effects for inhalation exposures. The RfD and RfC estimate a daily exposure level for a human population that is unlikely to pose an appreciable risk during a portion or for all of a human lifetime. It is based on a review of animal and/or human toxicity data, with adjustments for various data uncertainties. Carcinogenic effects are quantified using the CSF for ingestion and dermal exposures, and using inhalation unit risks (IUR) for inhalation exposure that are plausible upper bound estimates of the probability of the development of cancer per unit intake of the chemical over a lifetime. These are typically based on dose response data from human and/or animal studies.

6.3.1 Toxicity Criteria for Oral and Inhalation Exposures

Oral RfDs and CSFs and inhalation RfCs and IURs used in this HHRA were obtained from the following primary USEPA literature sources (2003):

- Tier 1 - Integrated Risk Information System (IRIS).

- Tier 2 - USEPA Provisional Peer Reviewed Toxicity Values (PPRTVs) – The Office of Research and Development/National Center for Environmental Assessment (NCEA) Superfund Health Risk Technical Support Center develops PPRTVs on a chemical-specific basis when requested by USEPA's Superfund program.

- Tier 3 - Other Toxicity Values – These sources include but are not limited to California Environmental Protection Agency (Cal EPA) toxicity values, ATSDR values, and the Annual Health Effects Assessment Summary Tables (HEAST) (USEPA, 1997b).

Although toxicity criteria can be found in several toxicological sources, USEPA's IRIS online database is the preferred source of toxicity values. This database is continuously updated, and the presented values have been verified by USEPA. The toxicity criteria for the constituents selected as COPCs are presented in Tables 16-18 through 16-21.

6.3.2 Toxicity Criteria for Dermal Exposure

RfDs and CSFs in the scientific literature are typically expressed as "administered" (i.e., not absorbed) doses. Therefore, these values are considered inappropriate for estimating risks associated with dermal exposures. Oral dose response parameters based on administered doses must be adjusted to absorbed doses before they can be compared to estimated dermal exposure intakes.

When oral absorption is essentially complete (i.e., 100 percent), an absorbed dose is equivalent to the administered dose, and therefore no toxicity adjustment is necessary. Conversely, when the gastrointestinal absorption of a chemical is poor (e.g., 1 percent), the absorbed dose is smaller than the administered dose; thus, toxicity factors based on absorbed dose should be adjusted to account for the difference in the absorbed dose relative to the administered dose. USEPA (2004) recommends a 50 percent absorption cut-off to reflect the intrinsic variability in analyzing absorption studies. Therefore, the adjustment from administered to absorbed dose was only performed when the chemical specific gastrointestinal absorption efficiency was less than 50 percent. The adjustment from administered to absorbed dose was made using chemical specific gastrointestinal absorption efficiencies published in numerous sources of guidance (e.g., 2004 [the primary reference], IRIS, ATSDR toxicological profiles, etc.), using the following equations:

$$RfD_{dermal} = (RfD_{oral})(ABS_{GI})$$

$$CSF_{dermal} = (CSF_{oral}) \ / \ (ABS_{GI})$$

where:

ABS_{GI}	=	absorption efficiency in the gastrointestinal tract
RfD_{dermal}	=	RfD for the dermal route of exposure
RfD_{oral}	=	RfD for the oral route of exposure
CSF_{dermal}	=	CSF for the dermal route of exposure
CSF_{oral}	=	CSF of the oral route of exposure

As noted above, the preceding adjustment of the oral toxicity criteria (e.g., RfDs, CSFs) was necessary to allow quantitative evaluation of the dermal route of exposure in the baseline risk assessment. An explanation of this procedure and the need for this procedure are presented in Appendix A of USEPA RAGS Part A (1989).

6.3.3 Toxicity Criteria for Trichloroethene

The toxicity factors for trichloroethene were finalized by USEPA in September 2011. Trichloroethene has toxicity factors that address both carcinogenic and noncarcinogenic effects. Toxicological studies indicated that exposure to trichloroethene increases the risk of kidney cancer, liver cancer, and non-

Hodgkin's lymphoma. There is a sufficient weight of evidence to suggest that trichloroethene induced kidney tumors are a result of a mutagenic mode of action. USEPA Guidelines for Carcinogen Risk Assessment (2005a) and Supplemental Guidance of Assessing Susceptibility from Early-Life Exposure to Carcinogens (2005b) specify the use of ADAFs for carcinogens that act via a mutagenic mode of action. However, the ADAFs will only be applied to a portion of the cancer slope factor and inhalation unit risk that is attributable to kidney-induced tumors.

The oral CSF for trichloroethene is 4.6 x 10-2 (mg/kg-day)-1 and the IUR is 4.1 x 10-6 (µg/m3)-1. For the kidney mutagenic endpoint, the oral CSF is 9.3 x 10-3 (mg/kg-day)-1 and the IUR is 1 x 10-6 (µg/m3)-1. There are no chemical-specific ADAFs for the kidney mutagenic endpoint; therefore, the EPA's default ADAFs are applied to the carcinogenic toxicity factors for the kidney-related component of Trichloroethene's carcinogenic toxicity factors. The following default ADAFs should be applied: 10 for ages 0 to 2, 3 for ages 2 to 16, and 1 (no adjustment) for ages 16 to 70. For the liver cancer and non-Hodgkin's lymphoma endpoints, the oral CSF is 3.7 x 10-2 (mg/kg-day)-1 and the IUR is 3 x 10-6 (µg/m3)-1. No ADAFs are applied to these values.

Noncarcinogenic effects are evaluated like all noncarcinogens in accordance with USEPA's risk assessment guidance (1989).

6.3.4 Toxicity Criteria for Carcinogenic Effects of PAHs

Limited toxicity values are available to evaluate the carcinogenic effects from exposure to PAHs. The most extensively studied PAH is benzo(a)pyrene, which is classified by the USEPA as a probable human carcinogen. Although CSFs are available for benzo(a)pyrene, insufficient data are available to calculate CSFs for other carcinogenic PAHs. Toxic effects for these chemicals were evaluated using toxic equivalency factors (TEFs) based on the potency of each compound relative to that of benzo(a)pyrene, as presented in current USEPA guidance (USEPA, 1993b). The TEFs are used to convert each individual carcinogenic PAH concentration into an equivalent concentration of benzo(a)pyrene.

Compound	TEF
Benzo(a)anthracene	0.1
Benzo(a)pyrene	1
Benzo(b)fluoranthene	0.1
Benzo(k)fluoranthene	0.01
Chrysene	0.001
Dibenzo(a,h)anthracene	1
Indeno(1,2,3-cd)pyrene	0.1

Carcinogenic PAHs acts via a mutagenic mode of action. USEPA Guidelines for Carcinogen Risk Assessment (2005a) and Supplemental Guidance of Assessing Susceptibility from Early-Life Exposure to Carcinogens (2005b) specify the use of ADAFs for carcinogens that act via a mutagenic mode of action. No chemical-specific ADAF is available for carcinogenic PAHs; therefore, USEPA's default ADAFs are applied to the carcinogenic intakes for the carcinogenic PAHs. The following default ADAFs were applied: 10 for ages 0 to 2, 3 for ages 2 to 16, and 1 (no adjustment) for ages 16 to 70.

6.4 RISK CHARACTERIZATION

This section provides a characterization of human health risks associated with potential exposures to COPCs at the Site. Potential risks (non-carcinogenic and carcinogenic) for human receptors resulting from exposures outlined in the exposure assessment were quantitatively determined and are discussed in this section. Sections 6.4.1 and 6.4.2 outline the methods used to quantitatively estimate the type and magnitude of potential risks for human receptors. A summary of the risk characterization for the Site 2 is provided in Section 6.4.3.

6.4.1 Quantitative Analysis for Chemicals

Quantitative estimates of risk for chemicals were calculated according to risk assessment methods outlined in USEPA guidance (USEPA, 1989). Lifetime cancer risks are expressed in the form of dimensionless probabilities, referred to as ILCRs, based on CSFs and IURs. Non-carcinogenic risk estimates are presented in the form of HQs that are determined through a comparison of intakes with published RfDs and RfCs.

ILCR estimates for ingestion and dermal exposures were generated for each COPC using estimated exposure intakes and published CSFs, as follows:

$$\text{ILCR} = (\text{Estimated Exposure Intake})(\text{CSF})$$

ILCRs estimates for inhalation exposures were generated for each COPC using estimated exposure concentrations and published IURs, as follows:

$$\text{ILCR} = (\text{IUR})(\text{Exposure Concentration})(1000\ \mu\text{g/mg})$$

An ILCR of 1×10^{-6} indicates that the exposed receptor has an one-in-one-million chance of developing cancer under the defined exposure scenario. Alternatively, such a risk may be interpreted as representing one additional case of cancer in an exposed population of one million people.

Non-carcinogenic risks were assessed using the concept of HQs and hazard indices (HIs). The HQ for a COPC is the ratio of the estimated intake to the RfD and is calculated for ingestion and dermal exposures as follows:

$$HQ = (\text{Estimated Exposure Intake})/(RfD)$$

For inhalation exposures, HQ is calculated as follows:

$$HQ = (\text{Exposure Concentration})/(RfC)$$

An HI was generated by summing the individual HQs for all COPCs. The HI is not a mathematical prediction of the severity of toxic effects and therefore is not a true "risk"; it is simply a numerical indicator of the possibility of the occurrence of noncarcinogenic (threshold) effects.

6.4.2 Comparison of Quantitative Risk Estimates to Benchmarks

To interpret the quantitative risks and to aid risk managers in determining the need for remediation at a site, quantitative risk estimates were compared to typical risk benchmarks. Calculated ILCRs were interpreted using the USEPA's "target range" (1x10-6 to 1x10-4).

USEPA has defined the range of 1x10-6 to 1x10-4 as the ILCR "target risk range" for most hazardous waste facilities addressed under CERCLA and RCRA. Individual or cumulative ILCRs greater than 1x10-4 will typically not be considered as protective of human health and ILCRs less than 1x10-6 will typically be regarded as protective. Risk management decisions are necessary when the ILCR is within the 1x10-4 to 1x10-6 cancer risk range.

An HI exceeding unity (1) indicates that there may be potential noncarcinogenic health risks associated with exposure. If an HI exceeds unity, a segregation of target organ effects associated with exposure to COPCs is typically performed. Only those chemicals that affect the same target organ(s) or exhibit similar critical effect(s) are regarded as truly additive. Consequently, it may be possible for a cumulative HI to exceed 1, but no adverse health effects are anticipated if the COPCs do not affect the same target organ or exhibit the same critical effect.

6.4.3 Results of the Risk Characterization

This section contains a summary of the results of the risk characterization for Site 2. Quantitative risk estimates for potential human receptors are developed for chemicals detected in soils and groundwater. Uncertainties associated with the risk estimates are discussed in Section 6.5. The methodology used to calculate the risks presented in this section is provided in Sections 6.2 and 6.3. Potential cancer risks and hazard indices were calculated for future construction workers, industrial workers, child recreational users, adult recreational users, and hypothetical residents under the RME and CTE scenarios and are summarized in Tables 6-22 and 6-23 and Figures 6-2 through 6-5. Sample calculations are presented in Appendix H.4, and the results of the risk assessment in RAGS Part D format are included in Appendix H.2.

6.4.3.1 Noncarcinogenic Risks

Tables 6-22 and 6-23 present the HIs for the RME and CTE scenarios at Site 2. No noncarcinogenic toxicity criteria are available for the identified COPCs in surface/subsurface soil therefore HIs could not be estimated for exposures to surface/subsurface soil. HIs for all receptors exposed to groundwater under the RME and CTE scenarios were less than unity (1), indicating that adverse non-carcinogenic effects are not anticipated for these receptors under the defined exposure conditions.

6.4.3.2 Carcinogenic Risks

RME Scenario

Table 6-22 and Figures 6-2 and 6-3 present the ILCRs for the RME scenario at Site 2. ILCRs for all receptors under the RME scenario were less than or within USEPA's target risk range of 10^{-4} to 10^{-6} with the exception of the hypothetical child and lifelong residents. The cumulative ILCRs for hypothetical child and lifelong residents were equal to the upper bound of USEPA's target risk range.

CTE Scenario

Table 6-23 and Figures 6-4 and 6-5 present the ILCRs for the CTE scenario at Site 2. ILCRs for all receptors under the CTE scenario were less than or within USEPA's and IDEM's target risk range of 10^{-4} to 10^{-6}.

6.4.3.3 Risks from Vapor Intrusion

As discussed in Section 6.1.4.3 chloroform, ethylbenzene, tetrachloroethene, trichloroethene, and vinyl chloride were detected in groundwater samples at concentrations exceeding USEPA screening levels for vapor intrusion. At present there are no buildings at the Site 2, consequently the vapor intrusion exposure pathway is incomplete for current land use. It is possible that a building may be constructed on these areas in the future but without knowing the details of the buildings there would be significant uncertainty associated with performing a quantitative evaluation using USEPA's Johnson and Ettinger volatilization model. Instead, cancer and non-cancer risk estimates were developed using the maximum detected groundwater concentrations and the USEPA screening levels for vapor intrusion (USEPA, 2012b), and using a simple ratio technique:

$$\frac{\text{USEPA Screening Level}}{\text{Groundwater Concentration}} = \frac{\text{Hazard Index of 1 or Cancer Risk Estimate of } 1 \times 10^{-6}}{\text{Hazard Index or Cancer Risk Estimate}}$$

Tables 6-24 and 6-25 presents the risk estimates for residential and commercial/industrial exposures, respectively. For residential exposures, the ILCR of 3x10-5 is within USEPA's target risk range of 10-4 to

10-6. The HI of 2 exceeds the acceptable level of 1. Trichloroethene (HQ = 2) was the major contributor to the HI for residential exposures to vapor intrusion.

For commercial/industrial exposures, the ILCR of 3x10-6 is within USEPA's target risk range and the HI of 0.6 is less than the acceptable level of 1.

Also concentrations of chloroform, ethylbenzene, tetrachloroethene, and vinyl chloride were less than their NYSDOH MCLs, which are potential ARARs for groundwater at Site 2. The maximum detected concentration of trichloroethene was greater than its NYSDOH MCL.

6.4.3.4 Risk Estimates Due to Chemicals Attributable to Background

COPCs for Site 2 were selected, in part, using available background concentrations for soil (Appendix G). At Site 2 arsenic was within background levels in surface soil and subsurface soil. Table 6-26 presents the cancer risks and hazard indices for the RME scenario associated with arsenic. RAGS Part D tables for these chemicals are presented in Appendix H.5.

HIs calculated on a target organ basis were less than the acceptable level of 1 for all receptors at Site 2 under the RME scenario. ILCRs for all receptors were within USEPA's target risk range for the RME scenario at Site 2. The risk estimates indicate that arsenic is a minor contributor to the combined "site plus background" risk estimates calculated for Site 2.

6.5 UNCERTAINTY ANALYSIS

Uncertainty is associated with all aspects of the HHRA. This section presents a generic summary of these uncertainties and discusses how they might affect the final risk numbers. A more detailed discussion of uncertainty is provided in each of the site-specific risk assessment sections.

Uncertainty in the selection of COPCs is related to the current status of the predictive databases, the grouping of samples, the numbers, types, and distributions of samples, and the procedures used to include or exclude constituents as COPCs. Uncertainty associated with the exposure assessment includes the values used as input variables for a given intake route or scenario, the assumptions made to determine exposure point concentrations, and the predictions regarding future land use and population characteristics. Uncertainty in the toxicity assessment includes the quality of the existing toxicity data needed to support dose response relationships and the weight of evidence used to determine the carcinogenicity of COPCs. Uncertainty in risk characterization includes that associated with exposure to multiple chemicals and the cumulative uncertainty from combining conservative assumptions made in earlier steps of the risk assessment process.

Whereas there are various sources of uncertainty, the direction of uncertainty can be influenced by the assumptions made throughout the risk assessment, including selection of COPCs and selection of values

for dose response relationships. Throughout the entire risk assessment, assumptions are biased toward a margin of safety so that the final calculated risks are overestimated.

Generally, risk assessments carry two types of uncertainty: measurement and informational uncertainty. Measurement uncertainty refers to the usual variance that accompanies scientific measurements. For example, this type of uncertainty is associated with analytical data collected for each site. The risk assessment reflects the accumulated variances of the individual values used.

Informational uncertainty stems from inadequate availability of information needed to complete the toxicity and exposure assessments. Often, this gap is significant, such as the absence of information on the effects of human exposure to low doses of a chemical, on the biological mechanism of action of a chemical, or the behavior of a chemical in soil.

Once the risk assessment is complete, the results must be reviewed and evaluated to identify the type and magnitude of uncertainty involved. Reliance on results from a risk assessment without consideration of uncertainties, limitations, and assumptions inherent in the process can be misleading. For example, to account for uncertainties in the development of exposure assumptions, conservative estimates must be made to ensure that the particular assumptions made are protective of sensitive subpopulations or the maximum exposed individuals. If a number of conservative assumptions are combined in an exposure model, the resulting calculations can propagate the uncertainties associated with those assumptions, thereby producing a much larger uncertainty for the final results. This uncertainty is biased toward over predicting both carcinogenic and noncarcinogenic risks. Thus, both the results of the risk assessment and the uncertainties associated with those results must be considered when making risk management decisions.

This interpretation is especially relevant when the risks exceed the point of departure for defining "acceptable" risk. For example, when risks calculated using a high degree of uncertainty are less than an acceptable risk level (i.e., $1x10^{-6}$ to $1x10^{-4}$), the interpretation of no significant risk is typically straightforward. However, when risks calculated using a high degree of uncertainty exceed an acceptable risk level (i.e., $1x10^{-4}$); a conclusion can be difficult unless uncertainty is considered.

6.5.1 <u>Uncertainty in Data Evaluation</u>

The most significant issues related to uncertainty in the data evaluation is the usability of the existing database, COPC screening levels used, the absence of screening levels for a few chemicals detected in site media, and the lack of background screening. A brief discussion of each of these issues is provided in this section.

Usability of Existing Databases

All the data used in the HHRA were validated. The qualification of data during the formal data validation process is not expected to compromise the results of the baseline human health risk assessment. Analytical data qualified as estimated were utilized, even though the reported positive concentrations or sample specific quantitation limits may be somewhat imprecise. The use of estimated data adds to the uncertainty associated with the risk assessment; however, the associated uncertainty is expected to be negligible compared to the other uncertainties inherent in the risk evaluation process (i.e., uncertainties with land uses, exposure scenarios, toxicological criteria, etc.). Because all data have been validated, the uncertainty in the calculated risks associated with the data is minimal.

COPC Screening Levels

The use of risk based screening values based on conservative land-use scenarios (i.e., residential land use for soil and ingestion of tap water for groundwater) corresponding to ILCRs of 10^{-6} and HIs of 0.1 ensured that all the significant contributors to risk from the site were evaluated. The elimination of chemicals present at concentrations that correspond to ILCRs less than 10 6 and HIs less than 0.1 should not affect the final conclusions of the risk assessment because those chemicals are not expected to cause a potential health concern at the detected concentrations.

Chemicals without Established Screening Levels

Risk-based screening levels are currently not available for some constituents detected at the Site [e.g., m+p-xylene, acenaphthylene, benzo(g,h,i)perylene, and phenanthrene]. For COPC screening, m-xylene was used as a surrogate for m+p-xylene, acenaphthene was used as a surrogate for acenaphthylene and pyrene was selected as a surrogate for benzo(g,h,i)perylene and phenanthrene. Applying toxicity values for one compound to another compound increases the uncertainty in the risk assessment both in regard to the selection of COPCs and the calculated risks. The direction of the uncertainty is not known.

6.5.2 Uncertainty in the Exposure Assessment

Uncertainty in the exposure assessment arises because of the methods used to calculate exposure point concentrations, the determination of land use conditions, the selection of receptors and scenarios, the estimation of exposure point concentrations, and the selection of exposure parameters. Each of these is discussed below.

Land Use

The current land use patterns at NWIRP Calverton are well established, thereby limiting the uncertainty associated with land use assumptions. Currently Site 2 is not being used for any activities. Anticipated future use of the site is for nonresidential activities. To be conservative, risks to potential and future recreational users, and hypothetical residents were estimated for the site.

Exposure Point Concentrations

Uncertainty is associated with the use of 95-percent UCLs on the mean concentration as EPCs. As a result of using 95-percent UCLs, the estimations of potential risk for the RME scenario were most likely overstated because UCLs represent the upper limit that potential receptors would be exposed to over the entire exposure period. In some cases (because ProUCL could not calculate an UCL), the maximum concentration was used as the EPC. Use of the maximum concentration tends to overestimate potential risks because receptors are assumed to be exposed continuously to the maximum concentration for the entire exposure period.

EPCs for construction workers hypothetically exposed to VOCs migrating from shallow groundwater to air were estimated using a VDEQ model for exposure of construction workers to vapors accumulating in an excavation trench. Site-specific parameters such as groundwater concentrations were used in the model. However, it was necessary to use model default values for most of the other input parameters. The use of model default values tended to increase the uncertainty in the calculated risks. The direction of the uncertainty was not known, although the model default values are generally conservative and tend to overestimate air concentrations.

Exposure Routes and Receptor Identification

The determination of various receptor groups and exposure routes of potential concern was based on current land use observed at the site and the anticipated future land use. Therefore, the uncertainty associated with the selection of exposure routes and potential receptors is minimal because they are considered to be well defined.

Exposure Parameters

Each exposure factor (for RME and CTE scenarios) selected for use in the risk assessment has some associated uncertainty. Generally, exposure factors are based on surveys of physiological parameters and lifestyle profiles across the United States. The attributes and activities studied in these surveys generally have a broad distribution. To avoid underestimation of exposure, in most cases, the USEPA guidelines (USEPA, 1991 and 1993a) on the RME receptor were used, which generally specify the use of the 95th percentile for most parameters. Therefore, the selected values for the RME receptor represent the upper bound of the observed or expected habits of the majority of the population.

Generally, the uncertainty can be assessed quantitatively for many assumptions made in determining factors for calculating exposures and intakes. Many of these parameters were determined from statistical analyses on human population characteristics. Often, the database used to summarize a particular exposure parameter (i.e., body weight) is quite large. Consequently, the values chosen for such variables in the RME scenario have low uncertainty.

Many of the exposure parameters used to calculate exposures and risks in this report are selected from a distribution of possible values, including USEPA guidance (1991 and 1993b) and dermal guidance (USEPA, 1997a and 2004a). For the RME scenario, the value representing the 95th percentile is generally selected for each parameter to ensure that the assessment bounds the actual risks from a postulated exposure. This risk number is used in risk management decisions but does not indicate what a more average or typical exposure might be or what risk range might be expected for individuals in the exposed population.

To address these issues, USEPA (1992) has suggested the use of the CTE receptor, whose intake variables are often set at approximately the 50th percentile of the distribution. The risks for this receptor seek to incorporate the range of uncertainty associated with various intake assumptions. Some of the parameters presented in this risk assessment were estimated using professional judgment, although USEPA does provide limited guidance for the CTE evaluation (USEPA, 1993a).

6.5.3 Uncertainty in the Toxicological Evaluation

Uncertainties associated with the toxicity assessment (determination of RfDs and CSFs and use of available criteria) are presented in this section.

Derivation of Toxicity Criteria

Uncertainty associated with the toxicity assessment is associated with hazard assessment and dose response evaluations for the COPCs. The hazard assessment deals with characterizing the nature and strength of the evidence of causation or the likelihood that a chemical that induces adverse effects in animals will also induce adverse effects in humans. Hazard assessment of carcinogenicity is evaluated as a weight of evidence determination, using the USEPA methods. Positive animal cancer test data suggest that humans contain tissue(s) that may manifest a carcinogenic response; however, the animal data cannot necessarily be used to predict the target tissue in humans.

Uncertainty in hazard assessment arises from the nature and quality of the animal and human data. Uncertainty is reduced when similar effects are observed across species, strain, sex, and exposure route; when the magnitude of the response is clearly dose related; when pharmacokinetic data indicate a similar fate in humans and animals; when postulated mechanisms of toxicity are similar for humans and animals; and when the chemical of concern is structurally similar to other chemicals for which the toxicity is more completely characterized.

Uncertainty in the dose response evaluation includes the determination of a CSF for the carcinogenic assessment. Uncertainty is introduced from interspecies (animal to human) extrapolation, which, in the absence of quantitative pharmacokinetic or mechanistic data, is usually based on consideration of interspecies differences in basal metabolic rate. Uncertainty also results from intraspecies variation.

Most toxicity experiments are performed with animals that are very similar in age and genotype, so intragroup biological variation is minimal, but the human population of concern may reflect a great deal of heterogeneity, including unusual sensitivity or tolerance to the COPC. Even toxicity data from human occupational exposure reflect a bias because only those individuals sufficiently healthy to attend work regularly (the "healthy worker effect") and those not unusually sensitive to the chemical are likely to be occupationally exposed. Finally, uncertainty arises from the quality of the key study from which the quantitative estimate is derived and the database. For cancer effects, the uncertainty associated with dose response factors is mitigated by assuming the 95 percent upper bound for the slope factor. Another source of uncertainty in carcinogenic assessment is the method by which data from high doses in animal studies are extrapolated to the dose range expected for environmentally exposed humans. The linearized multistage model, which is used in nearly all quantitative estimations of human risk from animal data, is based on a nonthreshold assumption of carcinogenesis. Evidence suggests, however, that epigenetic carcinogens, as well as many genotoxic carcinogens, have a threshold below which they are noncarcinogenic. Therefore, the use of the linearized multistage model is conservative for chemicals that exhibit a threshold for carcinogenicity.

Use of Chronic Toxicity Values for Construction Workers

Under the guidelines established by the Superfund program, exposures to construction workers of one year or less are classified as subchronic exposures. Risks for noncarcinogenic effects associated with subchronic exposures should incorporate toxicity values for subchronic and not chronic effects. Subchronic toxicity values are not as widely available as chronic values. Subchronic toxicity values used in this HHRA were obtained from USEPA's PPRTV internet site if available. Also ATSDR Minimal Risk Levels (MRLs) were used as subchronic toxicity values when PPRTV values were not available. Chronic toxicity values were used when subchronic toxicity values were not available. Using chronic toxicity criteria to evaluate subchronic exposures for construction workers tends to overestimate potential noncarcinogenic risks. However, this overestimation of noncarcinogenic risks does not affect the conclusions of this HHRA since noncarcinogenic risks for construction workers were within acceptable levels.

6.5.4 Uncertainty in the Risk Characterization

Uncertainty in risk characterization resulted from assumptions made regarding additivity of effects from exposure to multiple COPCs from various exposure routes. High uncertainty exists when summing noncancer risks for several substances across different exposure pathways. This assumes that each substance has a similar effect and/or mode of action. Even when compounds affect the same target organs, they may have different mechanisms of action or differ in their fate in the body, so additivity may not have been an appropriate assumption. However, the assumption of additivity was considered acceptable because in most cases it represented a conservative estimate of risk.

Risks to any individual may also have been overestimated by summing multiple assumed exposure pathway risks for any single receptor. Although every effort was made to develop reasonable scenarios, not all individual receptors may have been exposed via all pathways considered.

Also, the risk characterization did not consider antagonistic or synergistic effects. Little or no information was available to determine the potential for antagonism or synergism for the COPCs. Because chemical specific interactions could not be predicted, the likelihood for risks to be over predicted or under predicted could not be defined, but the methodology used was based on current USEPA guidance.

6.6 SUMMARY

This section summarizes the results of the baseline HHRA for Site 2 which was performed to characterize the potential risks to likely human receptors under current and potential future land use. There are no receptors under current land use. Potential receptors under future land use are construction workers, industrial workers, child and adult recreational users, and hypothetical child and adult residents.

The COPCs for direct contact to soil:

- Surface soil – benzo(a) anthracene, benzo(a) pyrene, benzo(b) fluoranthene, dibenzo(a,h) anthracene, and indeno(1,2,3-cd) pyrene.

- Subsurface Soil – benzo(a) anthracene, benzo(a) pyrene, benzo(b) fluoranthene, and dibenzo(a,h) anthracene.

The COPCs for chemical migration from soil to groundwater:

- Surface soil – benzo(a) anthracene, benzo(a) pyrene, benzo(b) fluoranthene, dibenzo(a,h) anthracene, indeno(1,2,3-cd) pyrene, naphthalene, Aroclor-1260, and cobalt.

- Subsurface Soil – m+p-xylenes, o-xylene, benzo(a) anthracene, benzo(a) pyrene, benzo(b) fluoranthene, dibenzo(a,h) anthracene, indeno(1,2,3-cd) pyrene, cobalt, hexavalent chromium, manganese, and selenium.

The COPCs for direct contact to groundwater:

- 1,4-dichlorobenzene, chloroform, cis-1,2-dichloroethene, ethylbenzene, m+p-xylenes, o-xylenes, trichloroethene, and vinyl chloride.

The COPCs for vapor intrusion:

- chloroform, ethylbenzene, tetrachloroethene, trichloroethene, and vinyl chloride.

The COPCs for migration of groundwater to surface water:

- 1,2-dichlorobenzene, 1,4-dichlorobenzene, tetrachloroethene, trichloroethene, and vinyl chloride.

The sum of the concentrations of 1,2-dichlorobenzene and 1,4-dichlorobenze at one location marginally exceeded the NYSDEC surface water criteria for total dichlorobenzenes. The NYSDEC surface water criterion for dichlorobenzenes is based on chronic effects to aquatic organisms. Consequently dichlorobenzenes in groundwater discharging to surface water does is not anticipated to adversely affect human health but may affect aquatic organisms. Concentrations of tetrachloroethene, trichloroethene, and vinyl chloride only exceeded the USEPA NRWQC for consumption of water and organisms. Surface water in the area is not used as a drinking water source; therefore tetrachloroethene, trichloroethene, and vinyl chloride in groundwater discharging to surface water does not adversely affect human health under current conditions.

Quantitative estimates of noncarcinogenic and carcinogenic risks (HIs and ILCRs, respectively) were developed for potential human receptors. No noncarcinogenic toxicity criteria are available for the identified COPCs in surface/subsurface soil therefore HIs could not be estimated for exposures to surface/subsurface soil. HIs for all receptors exposed to groundwater under the RME and CTE scenarios were less than unity (1), indicating that adverse non-carcinogenic effects are not anticipated for these receptors under the defined exposure conditions.

Cumulative ILCRs for all receptors under the RME scenario were less than or within USEPA's target risk range of 10^{-4} to 10^{-6} with the exception of the hypothetical child and lifelong resident. The ILCRs for hypothetical child and lifelong residents exposed to groundwater were equal to the upper bound of USEPA's target risk range. ILCRs for all receptors under the CTE scenario were less than or within USEPA's target risk range of 10^{-4} to 10^{-6}.

Chloroform, ethylbenzene, tetrachloroethene, trichloroethene, and vinyl chloride were detected in groundwater samples at concentrations exceeding USEPA screening levels for vapor intrusion. At present there are no buildings at the Site 2, consequently the vapor intrusion exposure pathway is incomplete for current land use. It is possible that a building may be constructed on these areas in the future but without knowing the details of the buildings there would be significant uncertainty associated with performing a quantitative evaluation using USEPA's Johnson and Ettinger volatilization model. Instead, cancer and non-cancer risk estimates were developed using the maximum detected groundwater concentrations and the USEPA screening levels for vapor intrusion, and using a simple ratio technique. ILCRs for residential and commercial/industrial exposures to vapor intrusion were within USEPA's target risk range. The HI for residential exposures to vapor intrusion exceeded the acceptable level of 1. Trichloroethene was the major contributor to the HI for residential exposures to vapor intrusion. The HI for commercial/industrial exposures to vapor intrusion was less than the acceptable level of 1.

7.0 CONCLUSIONS AND RECOMMENDATIONS

The following conclusions are based on the results of the RFI at Site 2, Fire Training Area:

- The Navy conducted a supplemental soil and groundwater investigation to evaluate potential releases associated with historic operations at Site 2. This evaluation incorporates changes to site conditions since two interim actions were conducted at the site. One action was an AS/SVE system from 1995 to 2000 system to address VOCs in soil and shallow groundwater. The second action was the excavation and offsite disposal of shallow soils in 2008 and 2009 (up to 6 feet) to address PCBs and PAHs. Data collected during this investigation supplemented the 1994 RFI data.

- During the 2011 investigation, a total of 129 groundwater samples, 15 subsurface soil samples and 2 surface soil samples were collected. In accordance with the 2011 UFP-SAP and based on location specific need, all of the groundwater samples and most of the soil samples were analyzed for VOCs and select soil samples were analyzed for PAHs, PCBs and metals. Seventeen piezometers and four staff gauges were installed south and east of Site 2 in order to create a more accurate groundwater potentiometric surface map.

- Based on the site specific HHRA, even though surface soils were found to contain PAHs and PCBs at concentrations above EPA Regional Screening Levels; a site-specific risk assessment did not identify excess risk (greater than 10^{-4} to 10^{-6} ICLR) to current and potential receptors (construction workers, industrial workers, recreational users, and hypothetical child and adult resident). Three PAHs (benzo[a]anthracene, benzo(a)pyrene, and dibenzo(a,h)anthracene) resulted in a 1×10^{-5} ICLR to the hypothetical lifelong (child and adult) resident. HQs were less than 1 for each of the current or potential future receptor.

- Several metals were detected in Site 2 soils, but were not detected at concentrations greater than site-specific background values.

- As discussed below, with the exception of a Xylene detection in subsurface soils at FT-SB408 (15 to 17 feet bgs), VOCs were not detected in subsurface or surface soils. PAHs and PCBs detected in soil were all below NYSDEC Soil Cleanup Objectives for residential land use.

- Xylenes were detected in one out of fifteen subsurface samples (FT-SB408) at a concentration of 2,500 µg/kg, which exceeds the EPA RSL for protection of groundwater of 180 µg/kg and the

NYSDEC Soil Clean-up Objectives for Unrestricted Land Use of 260 µg/kg. Prior to the 1995 to 2000 AS/SVE treatment, xylene concentrations in this area ranged up to 20,000 µg/kg.

- Based on the site specific HHRA, which considered current and potential receptors, five VOCs in groundwater (1,4-dichlorobenzene, chloroform, ethylbenzene, trichloroethene, and vinyl chloride) resulted in a combined 1×10^{-4} ICLR to the hypothetical lifelong (child and adult) resident. Individually, vinyl chloride resulted in a risk of 10^{-4} of incidental ingestion to child residence and lifelong (child and adult) resident. These VOCs were detected in 6 of 26 monitoring well samples. Xylenes, vinyl chloride, and tricholorethene at FT-MW02S were also detected above NYSDOH MCLs. VOCs detected in other monitoring wells were below NYSDOH MCLs.

- Vapor intrusion of the five VOCs were also identified as a potential concern if residential buildings are constructed at Site 2 (ICLR 2×10^{-5}).

- The groundwater downgradient (south and east of the Site 2 clearing) was investigated at NWIRP to the NWIRP fence line (property line) along Grumman Boulevard to determine whether VOCs were migrating off property. Except for trichloroethene, other VOCs detected in this area were less than NYSDOH MCLs. The maximum detection of trichloroethene in this area was 49 µg/L in FT-TW434 at a depth of 31 to 35 feet bgs. The highest concentration of trichloroethene historically detected at Site 2 in any groundwater sample was 90.3 µg/L at a temporary well (26 to 30 feet bgs) at Site 2 in 1994.

- Based on a preliminary evaluation of the site data, there is a trichloroethene plume approximately 10 feet thick and approximately 200 feet wide that extends to the NWIRP fence line (approximately 750 feet). The plume is defined on the west and east by FT-TW435 (16 µg/L) and FT-TW422 (6.2 µg/L), respectively, and further identified at the fence line at FT-TW428 (5.2 µg/L). Trichloroethene was not detected in groundwater samples below or above the depth interval of 21 to 35 feet bgs. There is evidence that this plume continues off property (e.g SLG-5).

- In addition, the trichloroethene plume appears to originate at the Site 2 clearing, but is not delineated to the north and west.

The following recommendations are based on the results of this RFI at Site 2, Fire Training Area:

- Sufficient data has been collected to proceed with an FS for Site 2 soils and on-property groundwater.

- Additional investigations are required to the north and west to confirm the source of the TCE and if necessary address this source.

- Additional monitoring wells are required at select temporary well locations with elevated trichloroethene concentrations to allow long-term evaluation of VOC migration.

- Consistent with the UFP-SAP, and based on the detections of TCE in off property groundwater, conduct further evaluation in that area.

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TABLES

TABLE 3-1

SOIL SAMPLING PROGRAM SUMMARY
SITE 2 - FIRE TRAINING AREA
NWIRP CALVERTON
CALVERTON, NEW YORK

		ANALYSIS			
SAMPLE LOCATION	**DEPTH OF SAMPLE (FEET BGS)**	**VOC**	**PAH**	**PCB**	**METALS**
FT-SB401	6 - 8[1]	X	X	X	X
FT-SB402	6 - 8[1]	X	X	X	X
FT-SB403	6 - 8[1]	X	X	X	X
FT-SB406	4 - 6[1]	X	X	X	X
FT-SB407	6 - 8[1]	X	X	X	X
FT-SB404	3 - 5'[2]	X			
	6 - 8[3]	X			
FT-SB405	2 - 4[2]	X			
	4 - 6[3]	X			
FT-SB408	15 - 17[2]	X	X		
FT-SB409	13 - 15[2]	X	X		
FT-SB410	14 - 16[2]	X	X		
FT-SB411	0 - 2[2]		X	X	
FT-SB412	2 - 4[2]		X		
	12 - 14[1]	X	X	X	
FT-SB413	0 - 2[1]	X	X	X	X
	8 - 10[1]	X	X	X	

Notes:

[1] - Area coverage sample collected to characterize soils throughout 9-acre clearing.

[2] - Area treated via AS/SVE system. Pre-treatment sample results exceeded VOC or PAH Screening Values.

[3] - Area treated by AS/SVE system. Evaluating potential vertical migration of VOCs.

BGS - Below Ground Surface

VOCs - Volatile Organic Compounds

PAHs - Polycyclic Aromatic Hydrocarbons

PCBs - Polychlorinated Biphenyls

TABLE 3-2

MONITORING WELL DETAILS
SCREEN INTERVALS, AND DEPTHS
SITE 2 - FIRE TRAINING AREA
NWIRP CALVERTON,
CALVERTON, NEW YORK

MONITORING WELL	SCREEN INTERVAL (FEET)	SCREEN INTERVAL (FEET MSL)	DEPTH (FEET BGS)	DEPTH (FEET MSL)
FT-MW01S	18.5 to 28.5	42.85 to 32.85	28.5	32.85
FT-MW01I	68 to 78	-7.08 to -17.08	78	-17.08
FT-MW02S	10.5 to 20.5	43.95 to 33.95	20.5	33.95
FT-MW02I	70 to 80	-6.16 to -16.16	80	-16.16
FT-MW03S	21.5 to 31.5	43.14 to 33.14	31.5	33.14
FT-MW04S	17 to 27	42.25 to 32.25	27	32.25
FT-MW05S	7.5 to 17.5	40.68 to 30.68	17.5	30.68
FT-MW05I	48 to 58	0.30 to -9.3	58	-9.13
FT-MW06S	17 to 27	41.30 to 31.3	27	31.3
FT-MW06I	65 to 75	-4.53 to -14.53	75	-14.53
FT-MW07S	25 to 35	42.73 to 32.73	35	32.73
FT-MW08S	4 to 14	40.32 to 30.32	14	30.32
FT-MW08I	23 to 33	1.04 to 11.04	33	11.04

Notes:

BGS - Below Ground Surface

MSL - Mean Sea Level

TABLE 3-3

TEMPORARY WELL SAMPLING PROGRAM
SITE 2 - FIRE TRAINING AREA
NWIRP CALVERTON
CALVERTON, NEW YORK

	SAMPLE DEPTH (FEET BGS)[1]					
TEMPORARY WELL	**20 - 25**	**30 - 35**	**40 - 45**	**50 - 55**	**60 - 65**	**71 - 75**
FT-GW421	X	X	X	X	X	
FT-GW422	X	X	X	X	X	
FT-GW423	X	X	X	X	X	
FT-GW424	X	X	X	X	X	
FT-GW425	X	X	X	X	X	
FT-GW426	X	X	X	X	X	
FT-GW427	X	X	X	X	X	
FT-GW428	X	X	X	X	X	
FT-GW429	X	X	X	X	X	
FT-GW430	X	X	X	X	X	X
FT-GW431	X	X	X	X	X	X
FT-GW432	X	X	X	X	X	X
FT-GW433	X	X	X	X	X	X
FT-GW434	X	X	X	X	X	X
FT-GW435	X	X	X	X	X	X
FT-GW436	X	X	X	X	X	X
FT-GW437	X	X	X	X		
FT-GW438	X	X	X	X		
FT-GW439	X	X	X	X		
FT-GW440	X	X	X	X		

Notes:

BGS - Below Ground Surface

[1]Groundwater grab samples analyzed for volatile organic compounds.

TABLE 3-4

PIEZOMETER AND STAFF GAUGE NOMENCLATURE,
SCREEN INTERVALS, AND DEPTHS
SITE 2 - FIRE TRAINING AREA
NWIRP CALVERTON
CALVERTON, NEW YORK

PIEZOMETER/STAFF GAUGE ID	SCREEN INTERVAL (FEET)	SCREEN INTERVAL (FEET MSL)	DEPTH (FEET BGS)	DEPTH (FEET MSL)
FT-PZ451S	5 to 15	41.56 to 31.56	17.28	31.56
FT-PZ452S	6 to 16	43.16 to 33.16	16.17	33.16
FT-PZ453S	3 to 13	40.02 to 30.02	15.51	30.02
FT-PZ454S	3 to 13	41.16 to 31.16	14.85	31.16
FT-PZ455S	25 to 35	40.26 to 30.26	37.71	30.26
FT-PZ455I	68 to 73	-2.73 to -7.73	75.38	-7.73
FT-PZ456S	3 to 13	39.18 to 29.18	15.06	29.18
FT-PZ456I	47 to 52	-4.99 to -9.99	54.31	-9.99
FT-PZ457S	4 to 14	38.32 to 28.32	16.18	28.32
FT-PZ458S	3 to 13	33.41 to 23.41	16.11	23.41
FT-PZ458I	40 to 45	-3.29 to -8.29	46.85	-8.29
FT-PZ459S	7 to 17	35.33 to 25.33	19.38	25.33
FT-PZ459I	41 to 46	2.39 to -3.39	48.31	-3.39
FT-PZ460I	45 to 50	-5.06 to -10.06	52.41	-10.06
FT-PZ461I	54 to 59	-6.43 to -11.43	61.35	-11.43
FT-PZ462S	3 to 13	37.05 to 27.05	14.71	27.05
FT-PZ462I	44 to 49	-3.63 to -8.63	50.8	-8.63
FTGA10	NA	NA	NA	NA
FTGA11	NA	NA	NA	NA
FTGA12	NA	NA	NA	NA
FTGA13	NA	NA	NA	NA

Notes:
BGS - Below Ground Surface
MSL - Mean Sea Level
NA - Not Applicable

TABLE 3-5

GROUNDWATER ELEVATION DATA
SITE 2, 10B, 6A AND SOUTHERN AREA
NWIRP CALVERTON
CALVERTON, NEW YORK

WELL ID	TOTAL DEPTH (FEET BTOC)	TOTAL DEPTH (FEET MSL)	WATER LEVEL		TOC (FEET MSL)	GROUND SURFACE ELEVATION (FEET MSL)	GROUNDWATER ELEVATION	
			DECEMBER 2011 (FEET BTOC)	FEBRUARY 2012 (FEET BTOC)			DECEMBER 2011 (FEET MSL)	FEBRUARY 2012 (FEET MSL)
SITE 2 - FIRE TRAINING AREA								
FT-MW01S	30.1	32.85	22.37		62.95	62.12	40.58	
FT-MW01I	79.7	-17.08	22.08		62.62	62.11	40.54	
FT-MW02S	20.5	33.95	14.15		54.45	53.34	40.30	
FT-MW02I	70.47	-16.16	14.16		54.31	53.26	40.15	
FT-MW03S	32.54	33.14	25.09		65.68	64.38	40.59	
FT-MW04S	27.9	32.25	19.95		60.15	59.95	40.20	
FT-MW05S	19.71	30.68	10.95	11.31	50.39	49.37	39.44	39.08
FT-MW05I	59.9	-9.13	11.36	11.73	50.77	49.87	39.41	39.04
FT-MW06S	28.83	31.3	20.32	20.61	60.13	59.44	39.81	39.52
FT-MW06I	75.71	-14.53	21.33	21.63	61.18	60.38	39.85	39.55
FT-MW07S	36.44	32.73	28.98	29.17	69.17	68.33	40.19	40.00
FT-MW08S	16.08	30.32	7.42	7.8	46.4	44.16	38.98	38.60
FT-MW08I	35.61	11.04	7.51	7.89	46.65	44.32	39.14	38.76
FT-PZ-451S	17.28	31.56	9.19	9.67	48.84	46.29	39.65	39.17
FT-PZ-452S	16.17	33.16	10.02	10.45	49.33	46.24	39.31	38.88
FT-PZ-453S	15.51	30.02	7.2	7.73	45.53	42.55	38.33	37.80
FT-PZ-454S	14.85	31.16	7.52	8.14	46.01	43.33	38.49	37.87
FT-PZ-455S	37.71	30.26	28.38	28.58	67.97	65.13	39.59	39.39
FT-PZ-455I	75.38	-7.73	27.97	28.18	67.65	65.26	39.68	39.47
FT-PZ-456S	15.06	29.18	8.13	8.52	44.24	41.75	36.11	35.72
FT-PZ-456I	54.31	-9.99	8.31	8.68	44.32	42.00	36.01	35.64
FT-PZ-457S	16.18	28.32	9.12	9.82	44.5	41.50	35.38	34.68
FT-PZ-458S	16.11	23.41	4.35	4.95	39.52	36.76	35.17	34.57
FT-PZ-458I	46.85	-8.29	4.32	4.93	38.56	36.73	34.24	33.63
FT-PZ-459S	19.38	25.33	10.58	11.04	44.71	41.90	34.13	33.67
FT-PZ-459I	48.31	-3.39	10.86	11.33	44.92	41.63	34.06	33.59
FT-PZ-460I	52.41	-10.06	9.02	9.65	42.35	39.40	33.33	32.70
FT-PZ-461I	61.35	-11.43	18.26	18.74	49.92	47.79	31.66	31.18
FT-PZ-462S	14.71	27.05	4.59	4.87	41.76	39.79	37.17	36.89
FT-PZ-462I	50.8	-8.63	5.06	5.33	42.17	39.91	37.11	36.84

TABLE 3-5

GROUNDWATER ELEVATION DATA
SITE 2, 10B, 6A AND SOUTHERN AREA
NWIRP CALVERTON
CALVERTON, NEW YORK

WELL ID	TOTAL DEPTH (FEET BTOC)	TOTAL DEPTH (FEET MSL)	WATER LEVEL		TOC (FEET MSL)	GROUND SURFACE ELEVATION (FEET MSL)	GROUNDWATER ELEVATION	
			DECEMBER 2011 (FEET BTOC)	FEBRUARY 2012 (FEET BTOC)			DECEMBER 2011 (FEET MSL)	FEBRUARY 2012 (FEET MSL)
SITE 10B								
ET-MW01S	19.12	28.41	9.45		47.53	45.17	38.08	
ET-MW02S	19	27.95	8.99		46.95	44.52	37.96	
ET-MW03S	19.48	28.33	9.86		47.81	45.24	37.95	
SITE 6A AND SOUTHERN AREA								
FC-MW01S	16.74	30.76	8.04		47.50	46.56	39.46	
FC-MW01I	57.51	-10.16	7.86		47.35	46.41	39.49	
FC-MW02SR1	14.5	31.83	7.08		46.33	44.27	39.25	
FC-MW02IR1	52.5	-6.11	7.05		46.40	44.40	39.35	
FC-MW03SR1	14.5	31.33	6.68		45.83	43.72	39.15	
FC-MW04S	15.1	30.3	6.34		45.40	44.46	39.06	
FC-MW04I	51.38	-6.06	6.23		45.32	44.37	39.09	
FC-MW05S	17.74	30.29	9.35		48.03	45.50	38.68	
FC-MW05I	59.37	-12.02	8.69		47.35	45.43	38.66	
FC-PZ05I1	30	17.85	9.3		47.85	NA	38.55	
FC-MW06S	20.98	29.68	11.46		50.66	48.48	39.20	
FC-MW07S	17.01	31.33	9.4		48.34	45.89	38.94	
FC-MW07I	60.07	-11.82	9.34		48.25	46.13	38.91	
FC-MW08S	14.49	30.69	5.14		45.18	43.22	40.04	
SA-MW-126S	17.57	22.22	4.72	5.04	39.79	37.36	35.07	34.75
SA-MW-126I	52.18	-12.21	4.85	5.17	39.97	37.52	35.12	34.80
SA-MW-126D	86.87	-46.83	6.83	7.26	40.04	37.36	33.21	32.78
SA-MW-127S	17.15	23.42	6.41	6.84	40.57	38.26	34.16	33.73
SA-MW-127I	48.2	-7.41	6.61	7.03	40.79	38.43	34.18	33.76
SA-MW-127D	77.14	-36.57	8.27	8.57	40.57	38.46	32.30	32.00
SA-MW-128S	18.81	21.73	8.55	8.96	40.54	38.19	31.99	31.58
SA-MW-128I	42.2	-1.24	9.01	9.43	40.96	38.62	31.95	31.53
SA-MW-128D	70.24	-29.6	9.36	9.59	40.64	38.34	31.28	31.05
SA-MW-129S	31.32	20.60	21.89		51.92	49.75	30.03	
SA-MW-129I	62.42	-10.26	22.17		52.16	49.92	29.99	
SA-MW-129D	92.01	-39.82	22.11		52.19	49.92	30.08	
SA-MW-130S	21.64	26.96	12.68		48.60	45.83	35.92	
SA-MW-130I	48.16	0.17	12.46		48.33	45.91	35.87	
SA-MW-131S	16.31	22.28	8.17	8.5	38.59	36.20	30.42	30.09

TABLE 3-5

GROUNDWATER ELEVATION DATA
SITE 2, 10B, 6A AND SOUTHERN AREA
NWIRP CALVERTON
CALVERTON, NEW YORK

WELL ID	TOTAL DEPTH (FEET BTOC)	TOTAL DEPTH (FEET MSL)	WATER LEVEL		TOC (FEET MSL)	GROUND SURFACE ELEVATION (FEET MSL)	GROUNDWATER ELEVATION	
			DECEMBER 2011 (FEET BTOC)	FEBRUARY 2012 (FEET BTOC)			DECEMBER 2011 (FEET MSL)	FEBRUARY 2012 (FEET MSL)
SA-MW-131I	41.55	-3.31	7.81	8.15	38.24	36.03	30.43	30.09
SA-MW-131D	71.85	-34.03	7.42	7.65	37.82	35.83	30.40	30.17
SA-MW-132S	16.9	19.85	5.51	5.84	36.75	34.09	31.24	30.91
SA-MW-132I	40.08	-3.32	5.52	5.85	36.76	34.02	31.24	30.91
SA-PZ-118S	18.48	12.65	5.06	5.2	31.13	29.23	26.07	25.93
SA-PZ-118I	61.24	-29.56	5.61	5.79	31.68	29.22	26.07	25.89
SA-PZ-120S	21.11	11.37	6.3		32.48	29.92	26.18	
SA-PZ-122S	24.68	19.07	14.63	14.89	43.75	41.16	29.12	28.86
SA-PZ-122I	51.22	-7.65	14.4	14.67	43.57	41.25	29.17	28.90
SA-PZ-122D	134.49	-91.02	13.82	13.98	43.47	41.25	29.65	29.49
SA-PZ-123S	19.07	17.89	8.98	9.18	36.96	34.47	27.98	27.78
SA-PZ-123I1	44.4	-6.89	9.5	9.7	37.51	34.75	28.01	27.81
SA-PZ-123I	83.66	-45.64	10.15	13.34	38.02	35.16	27.87	24.68
SA-PZ-134I	46.75	-7.13	5.82		39.62	36.96	33.80	
SA-PZ-136I	50.59	-11.038	4.93		39.55	37.42	34.62	
SA-PZ-137I	56.22	-14.554	7.01		41.67	39.25	34.66	
SA-PZ-138I	56.3	-16.27	4.72		40.03	36.94	35.31	
SA-PZ-138I1	44.62	-4.821	4.59		39.80	37.20	35.21	
SA-PZ-139I	49.42	-7.143	7.59		42.28	39.95	34.69	
SA-PZ-140I	52.21	-5.81	13.39	13.85	46.40	43.32	33.01	32.55
SA-PZ-141I	58.39	-12.307	13.77	13.91	46.08	43.79	32.31	32.17
SA-PZ-142I	48.32	-1.058	14.74	15.16	47.26	44.47	32.52	32.10
SA-PZ-143I	48.24	-1.846	14.32	14.67	46.39	43.95	32.07	31.72
SA-PZ-144S	17.42	24.083	8.77	8.99	41.50	38.82	32.73	32.51
SA-PZ-144I	52.07	-10.309	8.69	8.92	41.76	38.93	33.07	32.84
SA-PZ-145S	17.79	23.166	9.17	9.6	40.96	37.95	31.79	31.36
SA-PZ-145I	37.72	3.389	9.35	9.79	41.11	38.11	31.76	31.32
SA-PZ-145D	57.8	-16.816	9.71	9.91	40.98	37.84	31.27	31.07
SA-PZ-146	8.55	27.53	3.68	3.73	36.08	32.85	32.40	32.35
SA-PZ-149I1	39.13	5.6	9.25		44.73	42.24	35.48	
SA-PZ-161I	47.98	-7.395	5.96		40.59	38.21	34.63	
SA-PZ-166I	80	-46.966	6.33		33.03	30.16	26.70	
SA-PZ-168S	18.05	16.668	7.06		34.72	31.87	27.66	
SA-PZ-168I	82.68	-48.28	7.51		34.40	31.56	26.89	

TABLE 3-5

GROUNDWATER ELEVATION DATA
SITE 2, 10B, 6A AND SOUTHERN AREA
NWIRP CALVERTON
CALVERTON, NEW YORK

WELL ID	TOTAL DEPTH (FEET BTOC)	TOTAL DEPTH (FEET MSL)	WATER LEVEL		TOC (FEET MSL)	GROUND SURFACE ELEVATION (FEET MSL)	GROUNDWATER ELEVATION	
			DECEMBER 2011 (FEET BTOC)	FEBRUARY 2012 (FEET BTOC)			DECEMBER 2011 (FEET MSL)	FEBRUARY 2012 (FEET MSL)
SA-PZ-171I	48.79	-2.48	14.85	15.25	46.31	43.64	31.46	31.06
SA-PZ-172I	49.62	-3.7	14.71	15.16	45.92	44.06	31.21	30.76
STAFF GAUGE AND RIVER MONITORING POINTS								
	TOG							
FT-GA10	3.33		1.52	1.06	40.85		39.04	38.58
FT-GA11	3.33		1.6	1.05	38.95		37.22	36.67
FT-GA12	3.33		1.08	0.96	39.05		36.80	36.68
FT-GA12CS				0.75	37.02			36.27
FT-GA13	3.33		1.17	1.06	38.39		36.23	36.12
Staff Gauge #1 WS PRSC	3.33		1.62	1.65	32.24		30.53	30.56
Staff Gauge #2 ES PRSC	3.33		1.8	1.49	32.45		30.92	30.57
BM ES Conn Ave HDWL	Concrete		5.16	5.32	30.44		25.28	25.12

Notes:

BTOC - Below Top of Casing
MSL - Mean Sea Level
Blank - Data not collected

TABLE 4-1

SUMMARY OF DESCRIPTIVE STATISTICS FOR SURFACE SOIL
SITE 2 - FIRE TRAINING AREA
NWIRP CALVERTON
CALVERTON, NEW YORK

PARAMETER	FREQUENCY OF DETECTION	MINIMUM RESULT	MAXIMUM RESULT	LOCATION OF MAXIMUM	SAMPLE OF MAXIMUM DETECT	MINIMUM NON-DETECT	MAXIMUM NON-DETECT	AVERAGE POSITIVE RESULT	OVERALL AVERAGE	STANDARD DEVIATION
METALS (MG/KG)										
ALUMINUM	1/1	3810	3810	FTSB413	FT-SB-413-0002	--	--	3810	3810	--
ARSENIC	1/1	0.826 J	0.826 J	FTSB413	FT-SB-413-0002	--	--	0.83	0.83	--
BARIUM	1/1	7.63	7.63	FTSB413	FT-SB-413-0002	--	--	7.6	7.6	--
BERYLLIUM	1/1	0.085 J	0.085 J	FTSB413	FT-SB-413-0002	--	--	0.085	0.085	--
CADMIUM	1/1	0.147 J	0.147 J	FTSB413	FT-SB-413-0002	--	--	0.15	0.15	--
CALCIUM	1/1	841	841	FTSB413	FT-SB-413-0002	--	--	841	841	--
CHROMIUM	1/1	3.49	3.49	FTSB413	FT-SB-413-0002	--	--	3.5	3.5	--
COBALT	1/1	0.642 J	0.642 J	FTSB413	FT-SB-413-0002	--	--	0.64	0.64	--
IRON	1/1	3110	3110	FTSB413	FT-SB-413-0002	--	--	3110	3110	--
LEAD	1/1	3.99	3.99	FTSB413	FT-SB-413-0002	--	--	4.0	4.0	--
MAGNESIUM	1/1	125	125	FTSB413	FT-SB-413-0002	--	--	125	125	--
MANGANESE	1/1	17.2	17.2	FTSB413	FT-SB-413-0002	--	--	17.2	17.2	--
MERCURY	1/1	0.021 J	0.021 J	FTSB413	FT-SB-413-0002	--	--	0.021	0.021	--
NICKEL	1/1	1.74 J	1.74 J	FTSB413	FT-SB-413-0002	--	--	1.7	1.7	--
VANADIUM	1/1	5.6	5.6	FTSB413	FT-SB-413-0002	--	--	5.6	5.6	--
ZINC	1/1	10.9	10.9	FTSB413	FT-SB-413-0002	--	--	10.9	10.9	--
MISCELLANEOUS PARAMETERS (MG/KG)										
CHROMIUM III	1/1	3.49	3.49	FTSB413	FT-SB-413-0002	--	--	3.5	3.5	--
CYANIDE	1/1	0.038 J	0.038 J	FTSB413	FT-SB-413-0002	--	--	0.038	0.038	--
PCBS (UG/KG)										
AROCLOR-1248	1/2	22	22	FTSB413	FT-SB-413-0002	8.5	8.5	22.0	13.1	12.6
AROCLOR-1260	1/2	46	46	FTSB411	FT-SB-411-0002	9	9	46.0	25.3	29.3
POLYCYCLIC AROMATIC HYDROCARBONS (UG/KG)										
ACENAPHTHENE	1/2	37 J	37 J	FTSB411	FT-SB-411-0002	1.8	1.8	37.0	19.0	25.5
ACENAPHTHYLENE	1/2	3.1 J	3.1 J	FTSB411	FT-SB-411-0002	1.8	1.8	3.1	2.0	1.6
ANTHRACENE	2/2	2.9 J	79	FTSB411	FT-SB-411-0002	--	--	41.0	41.0	53.8
BENZO(A)ANTHRACENE	1/2	460 J	460 J	FTSB411	FT-SB-411-0002	1.8	1.8	460	230	325
BENZO(A)PYRENE	2/2	13	420	FTSB411	FT-SB-411-0002	--	--	217	217	288
BENZO(B)FLUORANTHENE	2/2	18	580	FTSB411	FT-SB-411-0002	--	--	299	299	397
BENZO(G,H,I)PERYLENE	2/2	10	290	FTSB411	FT-SB-411-0002	--	--	150	150	198
BENZO(K)FLUORANTHENE	2/2	6.5	190	FTSB411	FT-SB-411-0002	--	--	98.3	98.3	130
CHRYSENE	2/2	13	460	FTSB411	FT-SB-411-0002	--	--	237	237	316
DIBENZO(A,H)ANTHRACENE	2/2	2.9 J	79	FTSB411	FT-SB-411-0002	--	--	41.0	41.0	53.8
FLUORANTHENE	2/2	18	1000	FTSB411	FT-SB-411-0002	--	--	509	509	694

TABLE 4-1

SUMMARY OF DESCRIPTIVE STATISTICS FOR SURFACE SOIL
SITE 2 - FIRE TRAINING AREA
NWIRP CALVERTON
CALVERTON, NEW YORK

PARAMETER	FREQUENCY OF DETECTION	MINIMUM RESULT	MAXIMUM RESULT	LOCATION OF MAXIMUM	SAMPLE OF MAXIMUM DETECT	MINIMUM NON-DETECT	MAXIMUM NON-DETECT	AVERAGE POSITIVE RESULT	OVERALL AVERAGE	STANDARD DEVIATION
FLUORENE	1/2	19 J	19 J	FTSB411	FT-SB-411-0002	1.8	1.8	19.0	10.0	12.8
INDENO(1,2,3-CD)PYRENE	2/2	8.7	260	FTSB411	FT-SB-411-0002	--	--	134	134	178
NAPHTHALENE	2/2	5.8	11	FTSB411	FT-SB-411-0002	--	--	8.4	8.4	3.7
PHENANTHRENE	2/2	12	550	FTSB411	FT-SB-411-0002	--	--	281	281	380
PYRENE	2/2	21	840	FTSB411	FT-SB-411-0002	--	--	431	431	579

Associated Samples:

FT-SB-411-0002
FT-SB-413-0002

-- = Not Applicable

Data Qualifers:
J = Estimated value

TABLE 4-2

SUMMARY OF POSITIVE DETECTIONS IN SURFACE SOIL COMPARISON TO SCREENING CRITERIA
SITE 2 - FIRE TRAINING AREA
NWIRP CALVERTON
CALVERTON, NEW YORK

LOCATION SAMPLE ID SAMPLE DATE	**USEPA Regional Screening Levels[1]**		**NSYDEC Soil Cleanup Objectives[2]**	**FTSB411 FT-SB-411-0002 20111019**	**FTSB413 FT-SB-413-0002 20111019**
SAMPLE CODE	**Adjusted Direct Contact Residential**	**Protection of Groundwater**	**Unrestricted Land Use**	**NORMAL**	**NORMAL**
MATRIX				**SO**	**SO**
SAMPLE TYPE				**NORMAL**	**NORMAL**
SUBMATRIX				**SS**	**SS**
TOP DEPTH (FEET)				**0**	**0**
BOTTOM DEPTH (FEET)				**2**	**2**
POLYCYCLIC AROMATIC HYDROCARBONS (UG/KG)					
ACENAPHTHENE	340,000 N	4,100	20,000	37 J	1.8 U
ACENAPHTHYLENE	340,000 N[3]	4,100 [3]	100,000	3.1 J	1.8 U
ANTHRACENE	1,700,000 N	42,000	100,000	79	2.9 J
BENZO(A)ANTHRACENE	**150 C**	**10**	1,000	**460** J	1.8 U
BENZO(A)PYRENE	**15 C**	**3.5**	1,000	**420**	**13**
BENZO(B)FLUORANTHENE	**150 C**	**35**	1,000	**580**	18
BENZO(G,H,I)PERYLENE	170,000 N[4]	9,500 [4]	100,000	290	10
BENZO(K)FLUORANTHENE	1,500 C	350	800	190	6.5
CHRYSENE	15,000 C	1,100	1,000	460	13
DIBENZO(A,H)ANTHRACENE	**15 C**	**11**	330	**79**	2.9 J
FLUORANTHENE	230,000 N	70,000	100,000	1000	18
FLUORENE	230,000 N	4,000	30,000	19 J	1.8 U
INDENO(1,2,3-CD)PYRENE	**150 C**	**120**	500	**260**	8.7
NAPHTHALENE	3,600 C	**0.47**	12,000	**11**	**5.8**
PHENANTHRENE	170,000 N[4]	9,500 [4]	100,000	550	12
PYRENE	170,000 N	9,500	100,000	840	21
PCBS (UG/KG)					
AROCLOR-1248	220 C	24	100 [5]	8.5 U	22
AROCLOR-1260	220 C	**5.2**	100 [5]	**46**	9 U
METALS (MG/KG)					
ALUMINUM	7,700 N	23,000	NA	NA	3810
ARSENIC	**0.39 C**	**0.0013**	13	NA	**0.826** J
BARIUM	1,500 N	120	350	NA	7.63
BERYLLIUM	16 N	13	7.2	NA	0.085 J
CADMIUM	7 N	0.52	2.5	NA	0.147 J
CALCIUM	NA	NA	NA	NA	841
CHROMIUM	NA	NA	NA	NA	3.49

TABLE 4-2

SUMMARY OF POSITIVE DETECTIONS IN SURFACE SOIL COMPARISON TO SCREENING CRITERIA
SITE 2 - FIRE TRAINING AREA
NWIRP CALVERTON
CALVERTON, NEW YORK

LOCATION SAMPLE ID SAMPLE DATE	**USEPA Regional Screening Levels[1]**		**NSYDEC Soil Cleanup Objectives[2]**	**FTSB411 FT-SB-411-0002 20111019**	**FTSB413 FT-SB-413-0002 20111019**
SAMPLE CODE	**Adjusted Direct Contact Residential**	**Protection of Groundwater**	**Unrestricted Land Use**	**NORMAL**	**NORMAL**
MATRIX				**SO**	**SO**
SAMPLE TYPE				**NORMAL**	**NORMAL**
SUBMATRIX				**SS**	**SS**
TOP DEPTH (FEET)				**0**	**0**
BOTTOM DEPTH (FEET)				**2**	**2**
COBALT	2.3 N	**0.21**	NA	NA	**0.642** J
IRON	5,500 N	**270**	NA	NA	**3110**
LEAD	400	14 [6]	63	NA	3.99
MAGNESIUM	NA	NA	NA	NA	125
MANGANESE	180 N	21	1,600	NA	17.2
MERCURY	2.3 N[7]	0.033	0.18 [8]	NA	0.021 J
NICKEL	150 N	20	30	NA	1.74 J
VANADIUM	39 N	78	NA	NA	5.6
ZINC	2,300 N	290	109	NA	10.9
MISCELLANEOUS PARAMETERS (MG/KG)					
CHROMIUM III	12,000 N	28,000,000	30	NA	3.49
CYANIDE	4.7 N	0.094	27	NA	0.038 J

Shaded cells indicate that the analyte concentration is greater than minimum screening criteria.

Notes:

1 - USEPA Regional Screening Level (RSL), May 2012. Carcinogenic values represent an incremental cancer risk of $1x10^6$. The noncarcinogenic values are the RSL divided by 10 to correspond to a Target Hazard Quotient of 0.1. Protection of groundwater values are risk-based soil screening levels (SSLs) and represent a dilution attenuation factor of 1.

2 - New York State Department of Environmental Conservation (NYSDEC) Remedial Program Soil Cleanup Objectives. Table 375-6.8(a). Unrestricted Use Soil Cleanup Goals. December 2006.

3 - Value is for acenaphthene.
4 - Value is for pyrene.
5 - Value is for PCBs.
6 - Value is MCL based soil screening level.
7 - Value is for mercuric chloride (and other mercury salts).
8 - Value is for total mercury.
C - Carcinogenic
J - Estimated value
MCL - Maximum contaminant level

mg/kg = Milligram per kilogram
N - Noncarcinogenic
SO - Soil
SS - Surface Soil
U - Not detected
ug/kg = Microgram per kilogram
USEPA = United States Environmental Protection Agency

TABLE 4-3

SUMMARY OF DESCRIPTIVE STATISTICS FOR SUBSURFACE SOIL
SITE 2 - FIRE TRAINING AREA
NWIRP CALVERTON
CALVERTON, NEW YORK

PARAMETER	FREQUENCY OF DETECTION	MINIMUM RESULT	MAXIMUM RESULT	LOCATION OF MAXIMUM	SAMPLE OF MAXIMUM DETECT	MINIMUM NON-DETECT	MAXIMUM NON-DETECT	AVERAGE POSITIVE RESULT	OVERALL AVERAGE	STANDARD DEVIATION
METALS (MG/KG)										
ALUMINUM	5/5	511	5820	FTSB407	FT-SB-407-0608	--	--	2350	2350	2520
ARSENIC	4/5	0.383 J	1.58	FTSB407	FT-SB-407-0608	0.38	0.38	1.0	0.84	0.55
BARIUM	5/5	1.39 J	10.8	FTSB401	FT-SB-401-0608	--	--	5.0	5.0	4.8
BERYLLIUM	2/5	0.107 J	0.125 J	FTSB407	FT-SB-407-0608	0.115	0.14	0.12	0.083	0.031
CADMIUM	4/5	0.051 J	0.201 J	FTSB401	FT-SB-401-0608	0.14	0.14	0.12	0.11	0.074
CALCIUM	5/5	33.8 J	80.3 J	FTSB403	FT-SB-403-0608-D	--	--	60.8	60.8	19.1
CHROMIUM	5/5	1.06	5.87	FTSB407	FT-SB-407-0608	--	--	3.1	3.1	2.0
COBALT	3/5	0.457 J	1.24 J	FTSB401	FT-SB-401-0608	0.585	0.695	0.95	0.7	0.46
IRON	5/5	814	4420	FTSB407	FT-SB-407-0608	--	--	2390	2390	1840
LEAD	2/5	2.66	3.27	FTSB407	FT-SB-407-0608	0.809	1.09	3.0	1.5	1.4
MAGNESIUM	5/5	69.7 J	501	FTSB401	FT-SB-401-0608	--	--	221	221	204
MANGANESE	5/5	5.28	34.7	FTSB401	FT-SB-401-0608	--	--	15.6	15.6	11.9
MERCURY	2/5	0.006 J	0.013 J	FTSB407	FT-SB-407-0608	0.005	0.005	0.0095	0.0053	0.0046
NICKEL	5/5	0.424 J	2.18	FTSB401	FT-SB-401-0608	--	--	1.2	1.2	0.89
POTASSIUM	2/5	31.3 J	82.8 J	FTSB401	FT-SB-401-0608	38.15	46.4	57.1	35.1	27.1
SELENIUM	1/5	0.55 J	0.55 J	FTSB401	FT-SB-401-0608	0.38	0.54	0.55	0.29	0.15
VANADIUM	5/5	1.38 J	9.26	FTSB407	FT-SB-407-0608	--	--	4.6	4.6	3.5
ZINC	5/5	4.03	10.5	FTSB401	FT-SB-401-0608	--	--	6.6	6.6	3.2
MISCELLANEOUS PARAMETERS (MG/KG)										
CHROMIUM III	5/5	1.06	5.78	FTSB407	FT-SB-407-0608	--	--	3.1	3.1	1.9
HEXAVALENT CHROMIUM	1/5	0.09 J	0.09 J	FTSB407	FT-SB-407-0608	0.205	0.215	0.09	0.1	0.0065
POLYCYCLIC AROMATIC HYDROCARBONS (UG/KG)										
ANTHRACENE	2/11	28	40	FTSB408	FT-SB-408-1517	1.7	1.9	34.0	6.9	13.7
BENZO(A)ANTHRACENE	2/11	130 J	310 J	FTSB409	FT-SB-409-1315	1.7	1.9	220	40.7	97.3
BENZO(A)PYRENE	2/11	110	140	FTSB409	FT-SB-409-1315	1.7	1.9	125	23.4	50.7
BENZO(B)FLUORANTHENE	3/11	1.4 J	360	FTSB409	FT-SB-409-1315	1.7	1.9	177	49.0	115
BENZO(G,H,I)PERYLENE	2/11	88	150	FTSB409	FT-SB-409-1315	1.7	1.9	119	22.4	49.8
BENZO(K)FLUORANTHENE	2/11	56	130	FTSB409	FT-SB-409-1315	1.7	1.9	93.0	17.6	40.8
CHRYSENE	2/11	160	350	FTSB409	FT-SB-409-1315	1.7	1.9	255	47.1	111
DIBENZO(A,H)ANTHRACENE	2/11	22	45	FTSB409	FT-SB-409-1315	1.7	1.9	33.5	6.8	14.2
FLUORANTHENE	2/11	390	870	FTSB409	FT-SB-409-1315	1.7	1.9	630	115	276
FLUORENE	2/11	300 J	590 J	FTSB408	FT-SB-408-1517	1.7	1.9	445	81.6	191
INDENO(1,2,3-CD)PYRENE	2/11	76	130	FTSB409	FT-SB-409-1315	1.7	1.9	103	19.4	43.0

TABLE 4-3

SUMMARY OF DESCRIPTIVE STATISTICS FOR SUBSURFACE SOIL
SITE 2 - FIRE TRAINING AREA
NWIRP CALVERTON
CALVERTON, NEW YORK

PARAMETER	FREQUENCY OF DETECTION	MINIMUM RESULT	MAXIMUM RESULT	LOCATION OF MAXIMUM	SAMPLE OF MAXIMUM DETECT	MINIMUM NON-DETECT	MAXIMUM NON-DETECT	AVERAGE POSITIVE RESULT	OVERALL AVERAGE	STANDARD DEVIATION
PHENANTHRENE	2/11	550	920	FTSB408	FT-SB-408-1517	1.7	1.9	735	134	308
PYRENE	2/11	350	740	FTSB409	FT-SB-409-1315	1.7	1.9	545	99.8	237
VOLATILES (UG/KG)										
M+P-XYLENES	1/14	1300 J	1300 J	FTSB408	FT-SB-408-1517	5	6000	1300	309	848
METHYLENE CHLORIDE	1/14	2.4 J	2.4 J	FTSB410	FT-SB-410-1416	2.55	2950	2.4	117	393
O-XYLENE	1/14	1200 J	1200 J	FTSB408	FT-SB-408-1517	2.55	2950	1200	192	488

Notes:

Sample and duplicate are considered as one sample when determining the frequency of detection and as two separate samples when determining the minimum and maximum concentrations.

-- = Not Applicable

Associated Samples

Data Qualifers:
J = Estimated value

FT-SB-401-0608	FT-SB-404-0305	FT-SB-407-0608	FT-SB-410-1416-D
FT-SB-402-0608	FT-SB-404-0608	FT-SB-408-1517	FT-SB-412-0204
FT-SB-403-0608	FT-SB-405-0204	FT-SB-409-1315	FT-SB-412-1214
FT-SB-403-0608-AVG	FT-SB-405-0608	FT-SB-410-1416	FT-SB-413-0810
FT-SB-403-0608-D	FT-SB-406-0406	FT-SB-410-1416-AVG	

TABLE 4-4

SUMMARY OF POSITIVE DETECTIONS IN SUBSURFACE SOIL COMPARISON TO SCREENING CRITERIA
SITE 2 - FIRE TRAINING AREA
NWIRP CALVERTON
CALVERTON, NEW YORK

LOCATION	USEPA Regional Screening Levels[1]		NSYDEC Soil Cleanup Objectives[2]	FTSB401	FTSB402	FTSB403			FTSB404		FTSB405		FTSB406
SAMPLE ID				FT-SB-401-0608	FT-SB-402-0608	FT-SB-403-0608	FT-SB-403-0608-AVG	FT-SB-403-0608-D	FT-SB-404-0305	FT-SB-404-0608	FT-SB-405-0204	FT-SB-405-0608	FT-SB-406-0406
SAMPLE DATE				20111018	20111019	20111018	20111018	20111018	20111019	20111019	20111018	20111018	20111018
SAMPLE CODE				NORMAL	NORMAL	ORIGINAL	AVERAGE	DUPLICATE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
MATRIX				SO	SO	SO	SO	SO	SO	SO	SO	SO	SO
SAMPLE TYPE	Adjusted Direct Contact Residential	Protection of Groundwater	Unrestricted Land Use	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
SUBMATRIX				SB	SB	SB	SB	SB	SB	SB	SB	SB	SB
TOP DEPTH (FEET)				6	6	6	6	6	3	6	2	6	4
BOTTOM DEPTH (FEET)				8	8	8	8	8	5	8	4	8	6
VOLATILES (UG/KG)													
M+P-XYLENES	59,000 N[3]	**180 [3]**	**260 [4]**	5.5 U	5 U	5.5 U	5.25 U	5 U	5.5 U	5 U	5.5 UJ	5.5 U	5 U
METHYLENE CHLORIDE	36,000 N[5]	2.5	50	2.7 U	2.55 U	2.65 U	2.925 U	3.2 U	2.7 U	2.55 U	6 U	2.65 U	2.6 U
O-XYLENE	69,000 N	**190**	**260 [4]**	2.7 UJ	2.55 UJ	2.65 UJ	2.625 U	2.6 U	2.7 UJ	2.55 UJ	2.85 UJ	2.65 U	2.6 UJ
POLYCYCLIC AROMATIC HYDROCARBONS (UG/KG)													
ANTHRACENE	1,700,000 N	42,000	100,000	1.75 U	1.7 U	1.7 U	1.7 U	1.7 U	NA	NA	NA	NA	1.7 U
BENZO(A)ANTHRACENE	**150 C**	**10**	1,000	1.75 U	1.7 U	1.7 U	1.7 U	1.7 U	NA	NA	NA	NA	1.7 U
BENZO(A)PYRENE	**15 C**	**3.5**	1,000	1.75 U	1.7 U	1.7 U	1.7 U	1.7 U	NA	NA	NA	NA	1.7 U
BENZO(B)FLUORANTHENE	**150 C**	**35**	1,000	1.75 U	1.4 J	1.7 U	1.7 U	1.7 U	NA	NA	NA	NA	1.7 U
BENZO(G,H,I)PERYLENE	170,000 N[6]	9,500 [6]	100,000	1.75 U	1.7 U	1.7 U	1.7 U	1.7 U	NA	NA	NA	NA	1.7 U
BENZO(K)FLUORANTHENE	1,500 C	350	800	1.75 U	1.7 U	1.7 U	1.7 U	1.7 U	NA	NA	NA	NA	1.7 U
CHRYSENE	15,000 C	1,100	1,000	1.75 U	1.7 U	1.7 U	1.7 U	1.7 U	NA	NA	NA	NA	1.7 U
DIBENZO(A,H)ANTHRACENE	**15 C**	**11**	330	1.75 U	1.7 U	1.7 U	1.7 U	1.7 U	NA	NA	NA	NA	1.7 U
FLUORANTHENE	230,000 N	70,000	100,000	1.75 U	1.7 U	1.7 U	1.7 U	1.7 U	NA	NA	NA	NA	1.7 U
FLUORENE	230,000 N	4,000	100,000	1.75 U	1.7 U	1.7 U	1.7 U	1.7 U	NA	NA	NA	NA	1.7 U
INDENO(1,2,3-CD)PYRENE	150 C	**120**	500	1.75 U	1.7 U	1.7 U	1.7 U	1.7 U	NA	NA	NA	NA	1.7 U
PHENANTHRENE	170,000 N[6]	9,500 [6]	100,000	1.75 U	1.7 U	1.7 U	1.7 U	1.7 U	NA	NA	NA	NA	1.7 U
PYRENE	170,000 N	9,500	100,000	1.75 U	1.7 U	1.7 U	1.7 U	1.7 U	NA	NA	NA	NA	1.7 U
METALS (MG/KG)													
ALUMINUM	7,700 N	23,000	NA	4260	511	525	554.5	584	NA	NA	NA	NA	600
ARSENIC	**0.39 C**	**0.0013**	13	**1.18**	**0.783**	**0.383 J**	**0.4905**	**0.598 J**	NA	NA	NA	NA	0.38 U
BARIUM	1,500 N	120	350	10.8	1.39 J	1.75 J	1.73	1.71 J	NA	NA	NA	NA	1.62 J
BERYLLIUM	16 N	13	7.2	0.107 J	0.115 U	0.14 U	0.14 U	0.14 U	NA	NA	NA	NA	0.115 U
CADMIUM	7 N	0.52	2.5	0.201 J	0.057 J	0.14 U	0.14 U	0.14 U	NA	NA	NA	NA	0.051 J
CALCIUM	NA	NA	NA	75.3 J	48.3 J	76.4 J	78.35	80.3 J	NA	NA	NA	NA	33.8 J
CHROMIUM	NA	NA	NA	4.43	1.63	1.06	1.885	2.71	NA	NA	NA	NA	1.59
COBALT	2.3 N	**0.21**	NA	**1.24** J	0.585 U	0.695 U	0.6925 U	0.69 U	NA	NA	NA	NA	**0.457** J
IRON	5,500 N	**270**	NA	**4380**	**1240**	**814**	**885.5**	**957**	NA	NA	NA	NA	**1040**
LEAD	400	14 [7]	400	2.66	0.914 U	0.809 U	0.8645 U	0.92 U	NA	NA	NA	NA	1.09 U
MAGNESIUM	NA	NA	NA	501	82.1	69.7 J	75.55	81.4 J	NA	NA	NA	NA	69.8 J
MANGANESE	180 N	**21**	1,600	**34.7**	9.97	5.28	5.31	5.34	NA	NA	NA	NA	8.69
MERCURY	2.3 N[8]	0.033	0.18 [9]	0.006 J	0.005 UJ	0.005 UJ	0.005 U	0.005 UJ	NA	NA	NA	NA	0.005 UJ
NICKEL	150 N	20	30	2.18	0.583 J	0.563 J	0.5425	0.522 J	NA	NA	NA	NA	0.424 J
POTASSIUM	NA	NA	NA	82.8 J	38.95 U	46.4 U	46.175 U	45.95 U	NA	NA	NA	NA	38.15 U
SELENIUM	39 N	**0.4**	3.9	**0.55** J	0.39 U	0.465 U	0.4625 U	0.46 U	NA	NA	NA	NA	0.38 U
VANADIUM	39 N	78	NA	7.35	2.3	1.38 J	1.82	2.26	NA	NA	NA	NA	2.24
ZINC	2,300 N	290	109	10.5	4.24	4.75	4.495	4.24	NA	NA	NA	NA	4.03
MISCELLANEOUS PARAMETERS (MG/KG)													
CHROMIUM III	12,000 N	28,000,000	30	4.43	1.63	1.06	1.885	2.71	NA	NA	NA	NA	1.59
HEXAVALENT CHROMIUM	4.7 N	0.094	1	0.215 U	0.205 U	0.205 U	0.205 U	0.205 U	NA	NA	NA	NA	0.205 U

Shaded cells indicate that the analyte concentration is greater than minimum screening criteria.

Notes:

1 - USEPA Regional Screening Level (RSL), May 2012. Carcinogenic values represent an incremental cancer risk of 1x10-6. The noncarcinogenic values are the RSL divided by 10 to correspond to a Target Hazard Quotient of 0.1. Protection of groundwater values are risk-based soil screening levels (SSLs) and represent a dilution attenuation factor of 1.

2 - New York State Department of Environmental Conservation (NYSDEC) Remedial Program Soil Cleanup Objectives. Table 375-6.8(a). Unrestricted Use Soil Cleanup Goals. December 2006.

3 - Value is for m-xylene.

4 - Value is for mixed xylenes.

5 - Ten percent of the noncarcinogenic value is less than the carcinogenic value; therefore the noncarcinogenic value is presented.

6 - Value is for pyrene.

7 - Value is MCL based soil screening level.

8 - Value is for mercuric chloride (and other mercury salts).

9 - Value is for total mercury.

C - Carcinogenic

J - Estimated Value

MCL - Maximum contaminant level

mg/kg = Milligram per kilogram

N - Noncarcinogenic

SO - Soil

SB - Subsurface

U - Not Detected

ug/kg = Microgram per kilogram

USEPA = United States Environmental Protection Agency

TABLE 4-4

SUMMARY OF POSITIVE DETECTIONS IN SUBSURFACE SOIL COMPARISON TO SCREENING CRITERIA
SITE 2 - FIRE TRAINING AREA
NWIRP CALVERTON
CALVERTON, NEW YORK

LOCATION	USEPA Regional Screening Levels[1]		NSYDEC Soil Cleanup Objectives[2]	FTSB407	FTSB408	FTSB409	FTSB410			FTSB412		FTSB413
SAMPLE ID				FT-SB-407-0608	FT-SB-408-1517	FT-SB-409-1315	FT-SB-410-1416	FT-SB-410-1416-AVG	FT-SB-410-1416-D	FT-SB-412-0204	FT-SB-412-1214	FT-SB-413-0810
SAMPLE DATE				20111018	20111019	20111019	20111019	20111019	20111019	20111019	20111019	20111019
SAMPLE CODE				NORMAL	NORMAL	NORMAL	ORIGINAL	AVERAGE	DUPLICATE	NORMAL	NORMAL	NORMAL
MATRIX				SO	SO	SO	SO	SO	SO	SO	SO	SO
SAMPLE TYPE	Adjusted Direct Contact Residential	Protection of Groundwater	Unrestricted Land Use	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
SUBMATRIX				SB	SB	SB	SB	SB	SB	SB	SB	SB
TOP DEPTH (FEET)				6	15	13	14	14	14	2	12	8
BOTTOM DEPTH (FEET)				8	17	15	16	16	16	4	14	10
VOLATILES (UG/KG)												
M+P-XYLENES	59,000 N[3]	180 [3]	260 [4]	5.5 U	1300 J	6000 UJ	6 U	5.75 U	5.5 U	NA	5 U	5.5 U
METHYLENE CHLORIDE	36,000 N[5]	2.5	50	2.75 U	295 UJ	2950 UJ	2.4 J	2.4 J	2.85 U	NA	2.6 U	2.7 UJ
O-XYLENE	69,000 N	190	260 [4]	2.75 UJ	1200 J	2950 UJ	2.9 UJ	2.875 U	2.85 UJ	NA	2.6 UJ	2.7 U
POLYCYCLIC AROMATIC HYDROCARBONS (UG/KG)												
ANTHRACENE	1,700,000 N	42,000	100,000	1.8 U	40	28	1.9 U	1.9 U	NA	1.75 U	1.75 U	1.8 U
BENZO(A)ANTHRACENE	150 C	10	1,000	1.8 U	130 J	310 J	1.9 U	1.9 U	NA	1.75 U	1.75 U	1.8 U
BENZO(A)PYRENE	15 C	3.5	1,000	1.8 U	110	140	1.9 U	1.9 U	NA	1.75 U	1.75 U	1.8 U
BENZO(B)FLUORANTHENE	150 C	35	1,000	1.8 U	170	360	1.9 U	1.9 U	NA	1.75 U	1.75 U	1.8 U
BENZO(G,H,I)PERYLENE	170,000 N[6]	9,500 [6]	100,000	1.8 U	88	150	1.9 U	1.9 U	NA	1.75 U	1.75 U	1.8 U
BENZO(K)FLUORANTHENE	1,500 C	350	800	1.8 U	56	130	1.9 U	1.9 U	NA	1.75 U	1.75 U	1.8 U
CHRYSENE	15,000 C	1,100	1,000	1.8 U	160	350	1.9 U	1.9 U	NA	1.75 U	1.75 U	1.8 U
DIBENZO(A,H)ANTHRACENE	15 C	11	330	1.8 U	22	45	1.9 U	1.9 U	NA	1.75 U	1.75 U	1.8 U
FLUORANTHENE	230,000 N	70,000	100,000	1.8 U	390	870	1.9 U	1.9 U	NA	1.75 U	1.75 U	1.8 U
FLUORENE	230,000 N	4,000	100,000	1.8 U	590 J	300 J	1.9 U	1.9 U	NA	1.75 U	1.75 U	1.8 U
INDENO(1,2,3-CD)PYRENE	150 C	120	500	1.8 U	76	130	1.9 U	1.9 U	NA	1.75 U	1.75 U	1.8 U
PHENANTHRENE	170,000 N[6]	9,500 [6]	100,000	1.8 U	920	550	1.9 U	1.9 U	NA	1.75 U	1.75 U	1.8 U
PYRENE	170,000 N	9,500	100,000	1.8 U	350	740	1.9 U	1.9 U	NA	1.75 U	1.75 U	1.8 U
METALS (MG/KG)												
ALUMINUM	7,700 N	23,000	NA	5820	NA	NA	NA	NA	NA	NA	NA	NA
ARSENIC	0.39 C	0.0013	13	1.58	NA	NA	NA	NA	NA	NA	NA	NA
BARIUM	1,500 N	120	350	9.66	NA	NA	NA	NA	NA	NA	NA	NA
BERYLLIUM	16 N	13	7.2	0.125 J	NA	NA	NA	NA	NA	NA	NA	NA
CADMIUM	7 N	0.52	2.5	0.185 J	NA	NA	NA	NA	NA	NA	NA	NA
CALCIUM	NA	NA	NA	68.4 J	NA	NA	NA	NA	NA	NA	NA	NA
CHROMIUM	NA	NA	NA	5.87	NA	NA	NA	NA	NA	NA	NA	NA
COBALT	2.3 N	0.21	NA	1.14 J	NA	NA	NA	NA	NA	NA	NA	NA
IRON	5,500 N	270	NA	4420	NA	NA	NA	NA	NA	NA	NA	NA
LEAD	400	14 [7]	400	3.27	NA	NA	NA	NA	NA	NA	NA	NA
MAGNESIUM	NA	NA	NA	376	NA	NA	NA	NA	NA	NA	NA	NA
MANGANESE	180 N	21	1,600	19.1	NA	NA	NA	NA	NA	NA	NA	NA
MERCURY	2.3 N[8]	0.033	0.18 [9]	0.013 J	NA	NA	NA	NA	NA	NA	NA	NA
NICKEL	150 N	20	30	2.11 J	NA	NA	NA	NA	NA	NA	NA	NA
POTASSIUM	NA	NA	NA	31.3 J	NA	NA	NA	NA	NA	NA	NA	NA
SELENIUM	39 N	0.4	3.9	0.54 U	NA	NA	NA	NA	NA	NA	NA	NA
VANADIUM	39 N	78	NA	9.26	NA	NA	NA	NA	NA	NA	NA	NA
ZINC	2,300 N	290	109	9.69	NA	NA	NA	NA	NA	NA	NA	NA
MISCELLANEOUS PARAMETERS (MG/KG)												
CHROMIUM III	12,000 N	28,000,000	30	5.78	NA	NA	NA	NA	NA	NA	NA	NA
HEXAVALENT CHROMIUM	4.7 N	0.094	1	0.09 J	NA	NA	NA	NA	NA	NA	NA	NA

Shaded cells indicate that the analyte concentration is greater than minimum screening criteria.

Notes:

1 - USEPA Regional Screening Level (RSL), May 2012. Carcinogenic values represent an incremental cancer risk of 1x10-6. The noncarcinogenic values are the RSL divided by 10 to correspond to a Target Hazard Quotient of 0.1. Protection of groundwater values are risk-based soil screening levels (SSLs) and represent a dilution attenuation factor of 1.
2 - New York State Department of Environmental Conservation (NYSDEC) Remedial Program Soil Cleanup Objectives. Table 375-6.8(a). Unrestricted Use Soil Cleanup Goals. December 2006.
3 - Value is for m-xylene.
4 - Value is for mixed xylenes.
5 - Ten percent of the noncarcinogenic value is less than the carcinogenic value; therefore the noncarcinogenic value is presented.
6 - Value is for pyrene.
7 - Value is MCL based soil screening level.
8 - Value is for mercuric chloride (and other mercury salts).
9 - Value is for total mercury.
C - Carcinogenic
J - Estimated Value
MCL - Maximum contaminant level
mg/kg = Milligram per kilogram
N - Noncarcinogenic
SO - Soil
SB - Subsurface
U - Not Detected
ug/kg = Microgram per kilogram
USEPA = United States Environmental Protection Agency

TABLE 4-5

SUMMARY OF DESCRIPTIVE STATISTICS FOR GROUNDWATER FROM MONITORING WELLS
SITE 2 - FIRE TRAINING AREA
NWIRP CALVERTON
CALVERTON, NEW YORK

PARAMETER	FREQUENCY OF DETECTION	MINIMUM RESULT	MAXIMUM RESULT	LOCATION OF MAXIMUM DETECT	SAMPLE OF MAXIMUM DETECT	MINIMUM NON-DETECT	MAXIMUM NON-DETECT	AVERAGE POSITIVE RESULT	OVERALL AVERAGE	STANDARD DEVIATION
VOLATILE GASES (UG/L)										
METHANE	2/6	208	470.6	FTMW02S	FT-MW-02S-20110315	2.5	2.5	339	114	193
VOLATILES (UG/L)										
1,1-DICHLOROETHANE	3/26	0.81 J	1.3	FTMW02S	FT-MW02S-20110929-D	0.5	0.5	0.99	0.34	0.27
1,2-DICHLOROBENZENE	2/23	0.58 J	3.9	FTMW02S	FT-MW02S-20110929	0.5	0.5	2.1	0.41	0.74
1,4-DICHLOROBENZENE	1/23	1.2	1.3	FTMW02S	FT-MW02S-20110929	0.5	0.5	1.3	0.29	0.21
2-BUTANONE	2/26	6 J	26 J	FTMW02S	FT-MW-02S-20110315	2.5	2.5	12.8	2.1	3.7
ACETONE	2/26	9.5 J	27 J	FTMW02S	FT-MW-02S-20110315	2.5	2.5	18.9	2.6	5.3
CHLOROFORM	4/23	0.5 J	0.79 J	FTMW05I	FT-MW05I-20110929	0.5	0.5	0.61	0.31	0.15
CIS-1,2-DICHLOROETHENE	3/26	0.54 J	4.1 J	FTMW02S	FT-MW-02S-20110315	0.5	0.5	1.6	0.41	0.63
ETHYLBENZENE	1/26	4.7	4.8	FTMW02S	FT-MW-02S-20110315-D	0.5	0.5	4.8	0.42	0.88
ISOPROPYLBENZENE	1/23	0.8 J	0.89 J	FTMW02S	FT-MW-02S-20110315	0.5	0.5	0.85	0.28	0.12
M+P-XYLENES	1/26	7.6	7.8	FTMW02S	FT-MW-02S-20110315	1	1	7.7	0.78	1.4
O-XYLENE	2/26	2.8	16	FTMW02S	FT-MW-02S-20110315-D	0.5	0.5	9.5	0.96	3.1
O-XYLENE	2/26	2.8	16	FTMW02S	FT-MW-02S-20110315	0.5	0.5	9.5	0.96	3.1
TETRACHLOROETHENE	1/26	0.91 J	0.91 J	FTMW02S	FT-MW-02S-20110315-D	0.5	0.5	0.58	0.26	0.065
TOLUENE	1/26	4.4	4.5	FTMW02S	FT-MW-02S-20110315	0.5	0.5	4.5	0.41	0.82
TRICHLOROETHENE	3/26	0.74 J	12	FTMW02S	FT-MW-02S-20110315-D	0.5	0.5	5.1	0.81	2.3
VINYL CHLORIDE	1/26	1.4	1.8	FTMW02S	FT-MW02S-20110929	0.5	0.5	1.6	0.3	0.26

Notes:

Sample and duplicate are considered as one sample when determining the frequency of detection and as two separate samples when determining the minimum and maximum concentrations.

J = Estimated value

Associated Samples:

FT-MW-01I-20110314	FT-MW-02S-20110315-D	FT-MW-05I-20110314	FT-MW-07S-20110315
FT-MW01I-20111018	FT-MW02S-20110929	FT-MW05I-20110929	FT-MW07S-20110929
FT-MW-01S-20110314	FT-MW02S-20110929-AVG	FT-MW-05S-20110314	FT-MW-08I-20110314
FT-MW01S-20111018	FT-MW02S-20110929-D	FT-MW05S-20110929	FT-MW08I-20110929
FT-MW-02I-20110315	FT-MW-03-20110314	FT-MW-06I-20110314	FT-MW-08S-20110314
FT-MW02I-20110929	FT-MW03S-20111018	FT-MW06I-20110929	FT-MW08S-20110929
FT-MW-02S-20110315	FT-MW-04-20110314	FT-MW-06S-20110314	
FT-MW-02S-20110315-AVG	FT-MW04-20110929	FT-MW06S-20110929	

TABLE 4-6

SUMMARY OF POSITIVE DETECTIONS IN GROUNDWATER FROM MONITORING WELLS
COMPARISON TO SCREENING CRITERIA
SITE 2 - FIRE TRAINING AREA
NWIRP CALVERTON
CALVERTON, NEW YORK

LOCATION	Adjusted USEPA Regional Screening Level[1] Tap Water	USEPA Maximum Contaminant Level[2]	Adjusted Groundwater Volatilization USEPA Criteria[3]	NYSDOH Maximum Contaminant Level[4]	FTMW01I		FTMW01S		FTMW02I	
SAMPLE ID					FT-MW-01I-20110314	FT-MW01I-20111018	FT-MW-01S-20110314	FT-MW01S-20111018	FT-MW-02I-20110315	FT-MW02I-20110929
SAMPLE DATE					20110314	20111018	20110314	20111018	20110315	20110929
SAMPLE CODE					NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
MATRIX					GW	GW	GW	GW	GW	GW
VOLATILES (UG/L)										
1,1-DICHLOROETHANE	2.4 C	NA	6.6 C	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2-DICHLOROBENZENE	28 N	600	NA	5	0.5 U	NA	0.5 U	NA	0.5 U	0.5 U
1,4-DICHLOROBENZENE	**0.42 C**	75	2.2 C	5	0.5 U	NA	0.5 U	NA	0.5 U	0.5 U
2-BUTANONE	490 N	NA	NA	50	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 UJ
ACETONE	1,200 N	NA	NA	50	2.5 U	2.5 UJ	2.5 U	2.5 UJ	2.5 U	2.5 UJ
CHLOROFORM	**0.19 C**	80	0.71 C	50	0.5 U	NA	0.5 U	NA	0.5 U	**0.5 J**
CIS-1,2-DICHLOROETHENE	**2.8 N**	70	NA	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
ETHYLBENZENE	**1.3 C**	700	**3 C**	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ
ISOPROPYLBENZENE	39 N	NA	NA	50	0.5 U	NA	0.5 U	NA	0.5 U	0.5 U
M+P-XYLENES	19 N[5]	10,000 [5]	NA	**5**	1 U	1 U	1 U	1 U	1 U	1 U
O-XYLENE	19 N	10,000 [5]	49 N	**5**	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
TETRACHLOROETHENE	3.5 N[6]	5	0.57 C	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
TOLUENE	86 N	1,000	NA	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
TRICHLOROETHENE	**0.26 N[6]**	**5**	**0.52 N**	**5**	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
VINYL CHLORIDE	**0.015 C**	2	**0.14 C**	2	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
VOLATILE GASES (UG/L)										
METHANE	NA	NA	NA	NA	NA	NA	NA	NA	2.5 U	NA

Shaded cells indicate that the analyte concentration is greater than minimum screening criteria.

Notes:

1 - USEPA Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites, May, 2012. [Cancer benchmark value = 1E-06, Hazard index (HI) = 0.1].
2 - 2011 Edition of the Drinking Water Standards and Health Advisories (USEPA, January 2011).
3 - USEPA Vapor Intrusion Screening Level (VISL) Calculator, Version 1.0. November 2011 RSLs. Values correspond to a target cancer risk level of 1E-6 or HI = 0.1 and an attenuation factor of 0.001.
4 - New York State Department of Health (NYSDOH) Part 5, Subpart 5-1 Public Water Systems, Table 3 Organic Chemicals Maximum Contaminant Level (MCL) Determination, March 2010.
5 - Value is for total xylenes.
6 - Ten percent of the noncarcinogenic value is less than the carcinogenic value; therefore the noncarcinogenic value is presented.

C = Carcinogenic
GW = Groundwater
J - Estimated Value
MCL = Maximum Contaminant Level
N = Noncarcinogenic
NA = Not available
U - Not Detected
ug/L = Microgram per liter
USEPA = United States Environmental Protection Agency

TABLE 4-6

SUMMARY OF POSITIVE DETECTIONS IN GROUNDWATER FROM MONITORING WELLS
COMPARISON TO SCREENING CRITERIA
SITE 2 - FIRE TRAINING AREA
NWIRP CALVERTON
CALVERTON, NEW YORK

LOCATION	Adjusted USEPA Regional Screening Level[1] Tap Water	USEPA Maximum Contaminant Level[2]	Adjusted Groundwater Volatilization USEPA Criteria[3]	NYSDOH Maximum Contaminant Level[4]	FTMW02S					
SAMPLE ID					FT-MW-02S-20110315	FT-MW-02S-20110315-AVG	FT-MW-02S-20110315-D	FT-MW02S-20110929	FT-MW02S-20110929-AVG	FT-MW02S-20110929-D
SAMPLE DATE					20110315	20110315	20110315	20110929	20110929	20110929
SAMPLE CODE					ORIGINAL	AVERAGE	DUPLICATE	ORIGINAL	AVERAGE	DUPLICATE
MATRIX					GW	GW	GW	GW	GW	GW
VOLATILES (UG/L)										
1,1-DICHLOROETHANE	2.4 C	NA	6.6 C	5	0.5 U	0.53	0.81 J	1.2	1.25	1.3
1,2-DICHLOROBENZENE	28 N	600	NA	5	0.5 U	0.415	0.58 J	3.9	3.8	3.7
1,4-DICHLOROBENZENE	**0.42 C**	75	2.2 C	5	0.5 U	0.5 U	0.5 U	**1.3**	**1.25**	**1.2**
2-BUTANONE	490 N	NA	NA	50	26 J	19.5	13 J	6.1 J	6.05	6 J
ACETONE	1,200 N	NA	NA	50	27 J	27 J	2.5 UR	12 J	10.75	9.5 J
CHLOROFORM	**0.19 C**	80	0.71 C	50	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
CIS-1,2-DICHLOROETHENE	**2.8 N**	70	NA	5	**4.1** J	**3.45**	2.8 J	0.73 J	0.805	0.88 J
ETHYLBENZENE	**1.3 C**	700	**3 C**	5	**4.7**	**4.75**	**4.8**	0.5 UJ	0.5 U	0.5 UJ
ISOPROPYLBENZENE	39 N	NA	NA	50	0.89 J	0.845	0.8 J	0.5 U	0.5 U	0.5 U
M+P-XYLENES	19 N[5]	10,000 [5]	NA	**5**	**7.8**	**7.7**	**7.6**	1 U	1 U	1 U
O-XYLENE	19 N	10,000 [5]	49 N	**5**	**16**	**16**	**16**	3	2.9	2.8
TETRACHLOROETHENE	3.5 N[6]	5	0.57 C	5	0.5 U	**0.58**	**0.91** J	0.5 U	0.5 U	0.5 U
TOLUENE	86 N	1,000	NA	5	4.5	4.45	4.4	0.5 U	0.5 U	0.5 U
TRICHLOROETHENE	**0.26 N[6]**	**5**	**0.52 N**	**5**	**11**	**11.5**	**12**	0.5 U	**0.495**	**0.74** J
VINYL CHLORIDE	**0.015 C**	2	**0.14 C**	2	0.5 U	0.5 U	0.5 U	**1.8**	**1.6**	**1.4**
VOLATILE GASES (UG/L)										
METHANE	NA	NA	NA	NA	470.6	470.6	NA	NA	NA	NA

Shaded cells indicate that the analyte concentration is greater than minimum screening criteria.

Notes:

1 - USEPA Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites, May, 2012. [Cancer benchmark value = 1E-06, Hazard index (HI) = 0.1].
2 - 2011 Edition of the Drinking Water Standards and Health Advisories (USEPA, January 2011).
3 - USEPA Vapor Intrusion Screening Level (VISL) Calculator, Version 1.0. November 2011 RSLs. Values correspond to a target cancer risk level of 1E-6 or HI = 0.1 and an attenuation factor of 0.001.
4 - New York State Department of Health (NYSDOH) Part 5, Subpart 5-1 Public Water Systems, Table 3 Organic Chemicals Maximum Contaminant Level (MCL) Determination, March 2010.
5 - Value is for total xylenes.
6 - Ten percent of the noncarcinogenic value is less than the carcinogenic value; therefore the noncarcinogenic value is presented.

C = Carcinogenic
GW = Groundwater
J - Estimated Value
MCL = Maximum Contaminant Level
N = Noncarcinogenic
NA = Not available
U - Not Detected
ug/L = Microgram per liter
USEPA = United States Environmental Protection Agency

TABLE 4-6

SUMMARY OF POSITIVE DETECTIONS IN GROUNDWATER FROM MONITORING WELLS
COMPARISON TO SCREENING CRITERIA
SITE 2 - FIRE TRAINING AREA
NWIRP CALVERTON
CALVERTON, NEW YORK

LOCATION	Adjusted USEPA Regional Screening Level[1] Tap Water	USEPA Maximum Contaminant Level[2]	Adjusted Groundwater Volatilization USEPA Criteria[3]	NYSDOH Maximum Contaminant Level[4]	FTMW03S		FTMW04		FTMW05I	
SAMPLE ID					FT-MW-03-20110314	FT-MW03S-20111018	FT-MW-04-20110314	FT-MW04-20110929	FT-MW-05I-20110314	FT-MW05I-20110929
SAMPLE DATE					20110314	20111018	20110314	20110929	20110314	20110929
SAMPLE CODE					NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
MATRIX					GW	GW	GW	GW	GW	GW
VOLATILES (UG/L)										
1,1-DICHLOROETHANE	2.4 C	NA	6.6 C	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2-DICHLOROBENZENE	28 N	600	NA	5	0.5 U	NA	0.5 U	0.5 U	0.5 U	0.5 U
1,4-DICHLOROBENZENE	**0.42 C**	75	2.2 C	5	0.5 U	NA	0.5 U	0.5 U	0.5 U	0.5 U
2-BUTANONE	490 N	NA	NA	50	2.5 U	2.5 U	2.5 U	2.5 UJ	2.5 U	2.5 UJ
ACETONE	1,200 N	NA	NA	50	2.5 U	2.5 UJ	2.5 U	2.5 UJ	2.5 U	2.5 UJ
CHLOROFORM	**0.19 C**	80	0.71 C	50	0.5 U	NA	0.5 U	0.5 U	0.5 U	**0.79 J**
CIS-1,2-DICHLOROETHENE	**2.8 N**	70	NA	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
ETHYLBENZENE	**1.3 C**	700	**3 C**	5	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 UJ
ISOPROPYLBENZENE	39 N	NA	NA	50	0.5 U	NA	0.5 U	0.5 U	0.5 U	0.5 U
M+P-XYLENES	19 N[5]	10,000 [5]	NA	**5**	1 U	1 U	1 U	1 U	1 U	1 U
O-XYLENE	19 N	10,000 [5]	49 N	**5**	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
TETRACHLOROETHENE	3.5 N[6]	5	0.57 C	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
TOLUENE	86 N	1,000	NA	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
TRICHLOROETHENE	**0.26 N[6]**	**5**	**0.52 N**	**5**	0.5 U	**3.2**	0.5 U	0.5 U	0.5 U	0.5 U
VINYL CHLORIDE	**0.015 C**	2	**0.14 C**	2	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
VOLATILE GASES (UG/L)										
METHANE	NA	NA	NA	NA	NA	NA	NA	NA	2.5 U	NA

Shaded cells indicate that the analyte concentration is greater than minimum screening criteria.

Notes:

1 - USEPA Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites, May, 2012. [Cancer benchmark value = 1E-06, Hazard index (HI) = 0.1].
2 - 2011 Edition of the Drinking Water Standards and Health Advisories (USEPA, January 2011).
3 - USEPA Vapor Intrusion Screening Level (VISL) Calculator, Version 1.0. November 2011 RSLs. Values correspond to a target cancer risk level of 1E-6 or HI = 0.1 and an attenuation factor of 0.001.
4 - New York State Department of Health (NYSDOH) Part 5, Subpart 5-1 Public Water Systems, Table 3 Organic Chemicals Maximum Contaminant Level (MCL) Determination, March 2010.
5 - Value is for total xylenes.
6 - Ten percent of the noncarcinogenic value is less than the carcinogenic value; therefore the noncarcinogenic value is presented.

C = Carcinogenic
GW = Groundwater
J - Estimated Value
MCL = Maximum Contaminant Level
N = Noncarcinogenic
NA = Not available
U - Not Detected
ug/L = Microgram per liter
USEPA = United States Environmental Protection Agency

TABLE 4-6

SUMMARY OF POSITIVE DETECTIONS IN GROUNDWATER FROM MONITORING WELLS
COMPARISON TO SCREENING CRITERIA
SITE 2 - FIRE TRAINING AREA
NWIRP CALVERTON
CALVERTON, NEW YORK

LOCATION	Adjusted USEPA Regional Screening Level[1] Tap Water	USEPA Maximum Contaminant Level[2]	Adjusted Groundwater Volatilization USEPA Criteria[3]	NYSDOH Maximum Contaminant Level[4]	FTMW05S		FTMW06I		FTMW06S	
SAMPLE ID					FT-MW-05S-20110314	FT-MW05S-20110929	FT-MW-06I-20110314	FT-MW06I-20110929	FT-MW-06S-20110314	FT-MW06S-20110929
SAMPLE DATE					20110314	20110929	20110314	20110929	20110314	20110929
SAMPLE CODE					NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
MATRIX					GW	GW	GW	GW	GW	GW
VOLATILES (UG/L)										
1,1-DICHLOROETHANE	2.4 C	NA	6.6 C	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2-DICHLOROBENZENE	28 N	600	NA	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,4-DICHLOROBENZENE	**0.42 C**	75	2.2 C	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
2-BUTANONE	490 N	NA	NA	50	2.5 U	2.5 UJ	2.5 U	2.5 UJ	2.5 U	2.5 UJ
ACETONE	1,200 N	NA	NA	50	2.5 U	2.5 UJ	2.5 U	2.5 UJ	2.5 U	2.5 UJ
CHLOROFORM	**0.19 C**	80	0.71 C	50	0.5 U	0.5 U	**0.63** J	**0.52** J	0.5 U	0.5 U
CIS-1,2-DICHLOROETHENE	**2.8 N**	70	NA	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
ETHYLBENZENE	**1.3 C**	700	**3 C**	5	0.5 U	0.5 UJ	0.5 U	0.5 UJ	0.5 U	0.5 UJ
ISOPROPYLBENZENE	39 N	NA	NA	50	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
M+P-XYLENES	19 N[5]	10,000 [5]	NA	**5**	1 U	1 U	1 U	1 U	1 U	1 U
O-XYLENE	19 N	10,000 [5]	49 N	**5**	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
TETRACHLOROETHENE	3.5 N[6]	5	0.57 C	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
TOLUENE	86 N	1,000	NA	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
TRICHLOROETHENE	**0.26 N[6]**	**5**	**0.52 N**	**5**	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
VINYL CHLORIDE	**0.015 C**	2	**0.14 C**	2	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
VOLATILE GASES (UG/L)										
METHANE	NA	NA	NA	NA	2.5 U	NA	NA	NA	NA	NA

Shaded cells indicate that the analyte concentration is greater than minimum screening criteria.

Notes:

1 - USEPA Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites, May, 2012. [Cancer benchmark value = 1E-06, Hazard index (HI) = 0.1].
2 - 2011 Edition of the Drinking Water Standards and Health Advisories (USEPA, January 2011).
3 - USEPA Vapor Intrusion Screening Level (VISL) Calculator, Version 1.0. November 2011 RSLs. Values correspond to a target cancer risk level of 1E-6 or HI = 0.1 and an attenuation factor of 0.001.
4 - New York State Department of Health (NYSDOH) Part 5, Subpart 5-1 Public Water Systems, Table 3 Organic Chemicals Maximum Contaminant Level (MCL) Determination, March 2010.
5 - Value is for total xylenes.
6 - Ten percent of the noncarcinogenic value is less than the carcinogenic value; therefore the noncarcinogenic value is presented.

C = Carcinogenic
GW = Groundwater
J - Estimated Value
MCL = Maximum Contaminant Level
N = Noncarcinogenic
NA = Not available
U - Not Detected
ug/L = Microgram per liter
USEPA = United States Environmental Protection Agency

TABLE 4-6

SUMMARY OF POSITIVE DETECTIONS IN GROUNDWATER FROM MONITORING WELLS
COMPARISON TO SCREENING CRITERIA
SITE 2 - FIRE TRAINING AREA
NWIRP CALVERTON
CALVERTON, NEW YORK

LOCATION	Adjusted USEPA Regional Screening Level[1] Tap Water	USEPA Maximum Contaminant Level[2]	Adjusted Groundwater Volatilization USEPA Criteria[3]	NYSDOH Maximum Contaminant Level[4]	FTMW07S		FTMW08I		FTMW08S	
SAMPLE ID					FT-MW-07S-20110315	FT-MW07S-20110929	FT-MW-08I-20110314	FT-MW08I-20110929	FT-MW-08S-20110314	FT-MW08S-20110929
SAMPLE DATE					20110315	20110929	20110314	20110929	20110314	20110929
SAMPLE CODE					NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
MATRIX					GW	GW	GW	GW	GW	GW
VOLATILES (UG/L)										
1,1-DICHLOROETHANE	2.4 C	NA	6.6 C	5	0.5 U	0.5 U	1.2	0.5 U	0.5 U	0.5 U
1,2-DICHLOROBENZENE	28 N	600	NA	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,4-DICHLOROBENZENE	**0.42 C**	75	2.2 C	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
2-BUTANONE	490 N	NA	NA	50	2.5 U	2.5 UJ	2.5 U	2.5 U	2.5 U	2.5 UJ
ACETONE	1,200 N	NA	NA	50	2.5 U	2.5 UJ	2.5 U	2.5 U	2.5 U	2.5 U
CHLOROFORM	**0.19 C**	80	0.71 C	50	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
CIS-1,2-DICHLOROETHENE	**2.8 N**	70	NA	5	0.5 U	0.5 U	0.54 J	0.5 U	0.5 U	0.5 U
ETHYLBENZENE	**1.3 C**	700	**3 C**	5	0.5 U	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 UJ
ISOPROPYLBENZENE	39 N	NA	NA	50	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
M+P-XYLENES	19 N[5]	10,000 [5]	NA	**5**	1 U	1 U	1 U	1 U	1 U	1 U
O-XYLENE	19 N	10,000 [5]	49 N	**5**	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
TETRACHLOROETHENE	3.5 N[6]	5	0.57 C	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
TOLUENE	86 N	1,000	NA	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
TRICHLOROETHENE	**0.26 N[6]**	**5**	**0.52 N**	**5**	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
VINYL CHLORIDE	**0.015 C**	2	**0.14 C**	2	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
VOLATILE GASES (UG/L)										
METHANE	NA	NA	NA	NA	NA	NA	208	NA	2.5 U	NA

Shaded cells indicate that the analyte concentration is greater than minimum screening criteria.

Notes:

1 - USEPA Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites, May, 2012. [Cancer benchmark value = 1E-06, Hazard index (HI) = 0.1].
2 - 2011 Edition of the Drinking Water Standards and Health Advisories (USEPA, January 2011).
3 - USEPA Vapor Intrusion Screening Level (VISL) Calculator, Version 1.0. November 2011 RSLs. Values correspond to a target cancer risk level of 1E-6 or HI = 0.1 and an attenuation factor of 0.001.
4 - New York State Department of Health (NYSDOH) Part 5, Subpart 5-1 Public Water Systems, Table 3 Organic Chemicals Maximum Contaminant Level (MCL) Determination, March 2010.
5 - Value is for total xylenes.
6 - Ten percent of the noncarcinogenic value is less than the carcinogenic value; therefore the noncarcinogenic value is presented.

C = Carcinogenic
GW = Groundwater
J - Estimated Value
MCL = Maximum Contaminant Level
N = Noncarcinogenic
NA = Not available
U - Not Detected
ug/L = Microgram per liter
USEPA = United States Environmental Protection Agency

TABLE 4-7

SUMMARY OF DESCRIPTIVE STATISTICS FOR GROUNDWATER FROM TEMPORARY WELLS
SITE 2 - FIRE TRAINING AREA
NWIRP CALVERTON
CALVERTON, NEW YORK

PARAMETER	FREQUENCY OF DETECTION	MINIMUM RESULT	MAXIMUM RESULT	LOCATION OF MAXIMUM DETECT	SAMPLE OF MAXIMUM DETECT	MINIMUM NON-DETECT	MAXIMUM NON-DETECT	AVERAGE POSITIVE RESULT	OVERALL AVERAGE	STANDARD DEVIATION
VOLATILES (UG/L)										
1,1,1-TRICHLOROETHANE	1/105	1.4	1.4	FTTW421	FT-GW421-3135	0.5	2.5	1.4	0.38	0.34
1,1-DICHLOROETHANE	6/105	0.63 J	4.5 J	FTGW434	FT-GW434-3135	0.5	2.5	1.8	0.45	0.57
2-BUTANONE	1/105	6.2	6.2	FTGW435	FT-GW435-3135	2.5	12.5	6.2	1.9	1.7
ACETONE	12/101	1.2 J	16 J	FTGW434	FT-GW434-5155	2.5	12.5	8.6	2.4	3.2
BROMOFORM	1/51	2.6 J	2.6 J	FTTW425	FT-GW425-4145	0.5	0.5	2.6	0.3	0.33
CARBON DISULFIDE	1/51	0.73 J	0.73 J	FTGW439	FT-GW439-4145	0.5	0.5	0.73	0.26	0.067
CHLOROETHANE	1/51	0.51 J	0.51 J	FTTW425	FT-GW425-2125	0.5	0.5	0.51	0.26	0.036
CHLOROFORM	18/51	0.53 J	2.4	FTTW427	FT-GW427-6165	0.5	0.5	0.85	0.46	0.39
CHLOROMETHANE	11/51	0.47 J	1.4	FTGW438	FT-GW438-4145	0.5	0.5	0.8	0.37	0.26
CIS-1,2-DICHLOROETHENE	1/105	0.63 J	0.71 J	FTGW439	FT-GW439-3135	0.5	2.5	0.67	0.37	0.32
DICHLORODIFLUOROMETHANE	3/105	0.95 J	1.4 J	FTGW432	FT-GW432-6165	0.5	2.5	1.0	0.39	0.34
ETHYLBENZENE	1/105	0.72 J	0.72 J	FTTW425	FT-GW425-3135	0.5	2.5	0.72	0.37	0.32
M+P-XYLENES	1/105	1.4 J	1.4 J	FTTW425	FT-GW425-3135	1	5	1.4	0.75	0.65
METHYLENE CHLORIDE	4/105	1.7	6.7 J	FTGW432	FT-GW432-6165	0.5	2.5	4.4	0.53	0.94
O-XYLENE	1/105	2.7	2.7	FTTW425	FT-GW425-3135	0.5	2.5	2.7	0.39	0.39
TETRACHLOROETHENE	1/105	0.69 J	0.69 J	FTTW422	FT-GW422-3135	0.5	2.5	0.69	0.37	0.32
TOLUENE	1/105	0.41 J	0.41 J	FTGW440	FT-GW440-5155	0.5	2.5	0.41	0.37	0.32
TRICHLOROETHENE	8/105	0.94 J	49 J	FTGW434	FT-GW434-3135	0.5	2.5	13.5	1.4	5.7

Notes:

Sample and duplicate are considered as one sample when determining the frequency of detection and as two separate samples when determining the minimum and maximum concentrations.

J = Estimated value

ug/L = Microgram per liter

TABLE 4-7

SUMMARY OF DESCRIPTIVE STATISTICS FOR GROUNDWATER FROM TEMPORARY WELLS
SITE 2 - FIRE TRAINING AREA
NWIRP CALVERTON
CALVERTON, NEW YORK

Associated Samples:

FT-GW428-2125	FT-GW436-5155	FT-GW424-3135-D	FT-GW431-7175	FT-GW422-3135
FT-GW428-3135	FT-GW436-6165	FT-GW424-4145	FT-GW432-2630	FT-GW422-4145
FT-GW428-4145	FT-GW436-7175	FT-GW424-5155	FT-GW432-3135	FT-GW422-5155
FT-GW428-5155	FT-GW437-2125	FT-GW424-6165	FT-GW432-4145	FT-GW422-5155-AVG
FT-GW428-6165	FT-GW437-3135	FT-GW425-2125	FT-GW432-5155	FT-GW422-5155-D
FT-GW428-7175	FT-GW437-4145	FT-GW425-3135	FT-GW432-5155-AVG	FT-GW422-6165
FT-GW429-2125	FT-GW437-4145-AVG	FT-GW425-4145	FT-GW432-5155-D	FT-GW423-2125
FT-GW429-3135	FT-GW437-4145-D	FT-GW425-5155	FT-GW432-6165	FT-GW423-3135
FT-GW429-3135-AVG	FT-GW437-5155	FT-GW425-6165	FT-GW432-7175	FT-GW423-4145
FT-GW429-3135-D	FT-GW438-2125	FT-GW426-2125	FT-GW433-2630	FT-GW423-5155
FT-GW429-4145	FT-GW438-3135	FT-GW426-3135	FT-GW435-7175	FT-GW423-6165
FT-GW429-5155	FT-GW438-4145	FT-GW426-4145	FT-GW436-2630	FT-GW424-2125
FT-GW429-6165	FT-GW438-5155	FT-GW426-4145-AVG	FT-GW436-3135	FT-GW424-3135
FT-GW429-7175	FT-GW439-2125	FT-GW426-4145-D	FT-GW436-4145	FT-GW424-3135-AVG
FT-GW429-7175-AVG	FT-GW439-3135	FT-GW426-5155		
FT-GW429-7175-D	FT-GW439-3135-AVG	FT-GW426-6165		
FT-GW430-2125	FT-GW439-3135-D	FT-GW427-2125		
FT-GW430-3135	FT-GW439-4145	FT-GW427-3135		
FT-GW430-4145	FT-GW439-5155	FT-GW427-4145		
FT-GW430-5155	FT-GW440-2125	FT-GW427-5155		
FT-GW430-6165	FT-GW440-3135	FT-GW427-6165		
FT-GW430-7175	FT-GW440-4145			
FT-GW431-2125	FT-GW440-5155			
FT-GW431-3135	FT-GW421-2125			
FT-GW431-4145	FT-GW421-3135			
FT-GW431-5155	FT-GW421-4145			
FT-GW431-5155-AVG	FT-GW421-5155			
FT-GW431-5155-D	FT-GW421-6165			
FT-GW431-6165	FT-GW422-2125			

TABLE 4-8

SUMMARY OF POSITIVE DETECTIONS IN GROUNDWATER FROM TEMPORARY WELLS
COMPARISON TO SCREENING CRITERIA
SITE 2 - FIRE TRAINING AREA
NWIRP CALVERTON
CALVERTON, NEW YORK

LOCATION	Adjusted USEPA Regional Screening Level[1] Tap Water	USEPA Maximum Contaminant Level[2]	Adjusted Groundwater Volatilization USEPA Criteria[3]	NYSDOH Maximum Contaminant Level[4]	FTTW421					FTTW422
SAMPLE ID					FT-GW421-2125	FT-GW421-3135	FT-GW421-4145	FT-GW421-5155	FT-GW421-6165	FT-GW422-2125
SAMPLE DATE					20110616	20110616	20110616	20110616	20110616	20110615
SAMPLE CODE					NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
MATRIX					GW	GW	GW	GW	GW	GW
TOP DEPTH (FEET)					21	31	41	51	61	21
BOTTOM DEPTH (FEET)					25	35	45	55	65	25
VOLATILES (UG/L)										
1,1,1-TRICHLOROETHANE	750 N	200	740 N	5	0.5 U	1.4	0.5 U	0.5 U	0.5 U	0.5 U
1,1-DICHLOROETHANE	2.4 C	NA	6.6 C	5	0.5 U	3	0.5 U	0.5 U	0.5 U	0.5 U
2-BUTANONE	490 N	NA	NA	50	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
ACETONE	1,200 N	NA	NA	50	2.5 UJ	2.5 UR	2.5 UR	2.5 UR	2.5 UR	2.5 UJ
BROMOFORM	7.9 C	80	NA	50	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
CARBON DISULFIDE	72 N	NA	120 N	50	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
CHLOROETHANE	2,100 N	NA	2,300 N	5	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ
CHLOROFORM	**0.19 C**	80	**0.71 C**	50	0.5 U	0.5 U	0.5 U	0.5 U	0.65 J	0.5 U
CHLOROMETHANE	19 N	NA	26 N	50	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
CIS-1,2-DICHLOROETHENE	2.8 N	70	NA	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
DICHLORODIFLUOROMETHANE	19 N	NA	0.74 N	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
ETHYLBENZENE	1.3 C	700	3 C	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
M+P-XYLENES	19 N[5]	10,000 [5]	NA	5	1 U	1 U	1 U	1 U	1 U	1 U
METHYLENE CHLORIDE	8.4 N[6]	5	39 C	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
O-XYLENE	19 N	10,000 [5]	49 N	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
TETRACHLOROETHENE	3.5 N[6]	5	0.57 C	5	0.5 U	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 U
TOLUENE	86 N	1,000	NA	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
TRICHLOROETHENE	**0.26 N[6]**	**5**	**0.52 N**	**5**	0.5 U	**28**	0.5 U	0.5 U	0.5 U	0.5 U

Shaded cells indicate that the analyte concentration is greater than minimum screening criteria.

Notes:

1 - USEPA Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites, May, 2012. [Cancer benchmark value = 1E-06, Hazard index (HI) = 0.1].
2 - 2011 Edition of the Drinking Water Standards and Health Advisories (USEPA, January 2011).
3 - USEPA Vapor Intrusion Screening Level (VISL) Calculator, Version 1.0. November 2011 RSLs. Values correspond to a target cancer risk level of 1E-6 or HI = 0.1 and an attenuation factor of 0.001.
4 - New York State Department of Health (NYSDOH) Part 5, Subpart 5-1 Public Water Systems, Table 3 Organic Chemicals Maximum Contaminant Level (MCL) Determination, March 2010.
5 - Value is for total xylenes.
6 - Ten percent of the noncarcinogenic value is less than the carcinogenic value; therefore the noncarcinogenic value is presented.

C = Carcinogenic.
GW = Groundwater
MCL = Maximum Contaminant Level.
N = Noncarcinogenic.
NA = Not available.
ug/L = Microgram per liter.
USEPA = United States Environmental Protection Agency.

TABLE 4-8

SUMMARY OF POSITIVE DETECTIONS IN GROUNDWATER FROM TEMPORARY WELLS
COMPARISON TO SCREENING CRITERIA
SITE 2 - FIRE TRAINING AREA
NWIRP CALVERTON
CALVERTON, NEW YORK

LOCATION	Adjusted USEPA Regional Screening Level[1] Tap Water	USEPA Maximum Contaminant Level[2]	Adjusted Groundwater Volatilization USEPA Criteria[3]	NYSDOH Maximum Contaminant Level[4]	FTTW422					
SAMPLE ID					FT-GW422-3135	FT-GW422-4145	FT-GW422-5155	FT-GW422-5155-AVG	FT-GW422-5155-D	FT-GW422-6165
SAMPLE DATE					20110615	20110615	20110615	20110615	20110615	20110615
SAMPLE CODE					NORMAL	NORMAL	ORIGINAL	AVERAGE	DUPLICATE	NORMAL
MATRIX					GW	GW	GW	GW	GW	GW
TOP DEPTH (FEET)					31	41	51	51	51	61
BOTTOM DEPTH (FEET)					35	45	55	55	55	65
VOLATILES (UG/L)										
1,1,1-TRICHLOROETHANE	750 N	200	740 N	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1-DICHLOROETHANE	2.4 C	NA	6.6 C	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
2-BUTANONE	490 N	NA	NA	50	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
ACETONE	1,200 N	NA	NA	50	2.5 UJ	2.5 UJ	2.5 UJ	2.5 U	2.5 UJ	2.5 UJ
BROMOFORM	7.9 C	80	NA	50	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
CARBON DISULFIDE	72 N	NA	120 N	50	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
CHLOROETHANE	2,100 N	NA	2,300 N	5	0.5 UJ	0.5 UJ	0.5 UJ	0.5 U	0.5 UJ	0.5 UJ
CHLOROFORM	**0.19 C**	80	**0.71 C**	50	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.62 J
CHLOROMETHANE	19 N	NA	26 N	50	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
CIS-1,2-DICHLOROETHENE	2.8 N	70	NA	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
DICHLORODIFLUOROMETHANE	19 N	NA	0.74 N	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
ETHYLBENZENE	1.3 C	700	3 C	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
M+P-XYLENES	19 N[5]	10,000 [5]	NA	5	1 U	1 U	1 U	1 U	1 U	1 U
METHYLENE CHLORIDE	8.4 N[6]	5	39 C	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
O-XYLENE	19 N	10,000 [5]	49 N	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
TETRACHLOROETHENE	3.5 N[6]	5	0.57 C	5	0.69 J	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
TOLUENE	86 N	1,000	NA	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
TRICHLOROETHENE	**0.26 N[6]**	**5**	**0.52 N**	**5**	**6.2**	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U

Shaded cells indicate that the analyte concentration is greater than minimum screening criteria.

Notes:

1 - USEPA Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites, May, 2012. [Cancer benchmark value = 1E-06, Hazard index (HI) = 0.1].
2 - 2011 Edition of the Drinking Water Standards and Health Advisories (USEPA, January 2011).
3 - USEPA Vapor Intrusion Screening Level (VISL) Calculator, Version 1.0. November 2011 RSLs. Values correspond to a target cancer risk level of 1E-6 or HI = 0.1 and an attenuation factor of 0.001.
4 - New York State Department of Health (NYSDOH) Part 5, Subpart 5-1 Public Water Systems, Table 3 Organic Chemicals Maximum Contaminant Level (MCL) Determination, March 2010.
5 - Value is for total xylenes.
6 - Ten percent of the noncarcinogenic value is less than the carcinogenic value; therefore the noncarcinogenic value is presented.

C = Carcinogenic.
GW = Groundwater
MCL = Maximum Contaminant Level.
N = Noncarcinogenic.
NA = Not available.
ug/L = Microgram per liter.
USEPA = United States Environmental Protection Agency.

TABLE 4-8

SUMMARY OF POSITIVE DETECTIONS IN GROUNDWATER FROM TEMPORARY WELLS
COMPARISON TO SCREENING CRITERIA
SITE 2 - FIRE TRAINING AREA
NWIRP CALVERTON
CALVERTON, NEW YORK

LOCATION	Adjusted USEPA Regional Screening Level[1] Tap Water	USEPA Maximum Contaminant Level[2]	Adjusted Groundwater Volatilization USEPA Criteria[3]	NYSDOH Maximum Contaminant Level[4]	FTTW423					FTTW424
SAMPLE ID					FT-GW423-2125	FT-GW423-3135	FT-GW423-4145	FT-GW423-5155	FT-GW423-6165	FT-GW424-2125
SAMPLE DATE					20110408	20110408	20110408	20110408	20110615	20110615
SAMPLE CODE					NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
MATRIX					GW	GW	GW	GW	GW	GW
TOP DEPTH (FEET)					21	31	41	51	61	21
BOTTOM DEPTH (FEET)					25	35	45	55	65	25
VOLATILES (UG/L)										
1,1,1-TRICHLOROETHANE	750 N	200	740 N	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1-DICHLOROETHANE	2.4 C	NA	6.6 C	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
2-BUTANONE	490 N	NA	NA	50	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
ACETONE	1,200 N	NA	NA	50	2.5 U	2.5 U	2.5 U	2.7 J	2.5 UJ	2.5 U
BROMOFORM	7.9 C	80	NA	50	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
CARBON DISULFIDE	72 N	NA	120 N	50	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
CHLOROETHANE	2,100 N	NA	2,300 N	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 UJ
CHLOROFORM	**0.19 C**	80	**0.71 C**	50	0.5 U	0.5 U	0.5 U	0.63 J	0.58 J	0.5 U
CHLOROMETHANE	19 N	NA	26 N	50	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
CIS-1,2-DICHLOROETHENE	2.8 N	70	NA	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
DICHLORODIFLUOROMETHANE	19 N	NA	0.74 N	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
ETHYLBENZENE	1.3 C	700	3 C	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
M+P-XYLENES	19 N[5]	10,000 [5]	NA	5	1 U	1 U	1 U	1 U	1 U	1 U
METHYLENE CHLORIDE	8.4 N[6]	5	39 C	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
O-XYLENE	19 N	10,000 [5]	49 N	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
TETRACHLOROETHENE	3.5 N[6]	5	0.57 C	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
TOLUENE	86 N	1,000	NA	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
TRICHLOROETHENE	**0.26 N[6]**	**5**	**0.52 N**	**5**	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U

Shaded cells indicate that the analyte concentration is greater than minimum screening criteria.

Notes:

1 - USEPA Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites, May, 2012. [Cancer benchmark value = 1E-06, Hazard index (HI) = 0.1].
2 - 2011 Edition of the Drinking Water Standards and Health Advisories (USEPA, January 2011).
3 - USEPA Vapor Intrusion Screening Level (VISL) Calculator, Version 1.0. November 2011 RSLs. Values correspond to a target cancer risk level of 1E-6 or HI = 0.1 and an attenuation factor of 0.001.
4 - New York State Department of Health (NYSDOH) Part 5, Subpart 5-1 Public Water Systems, Table 3 Organic Chemicals Maximum Contaminant Level (MCL) Determination, March 2010.
5 - Value is for total xylenes.
6 - Ten percent of the noncarcinogenic value is less than the carcinogenic value; therefore the noncarcinogenic value is presented.

C = Carcinogenic.
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MCL = Maximum Contaminant Level.
N = Noncarcinogenic.
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ug/L = Microgram per liter.
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TABLE 4-8

SUMMARY OF POSITIVE DETECTIONS IN GROUNDWATER FROM TEMPORARY WELLS
COMPARISON TO SCREENING CRITERIA
SITE 2 - FIRE TRAINING AREA
NWIRP CALVERTON
CALVERTON, NEW YORK

LOCATION	Adjusted USEPA Regional Screening Level[1] Tap Water	USEPA Maximum Contaminant Level[2]	Adjusted Groundwater Volatilization USEPA Criteria[3]	NYSDOH Maximum Contaminant Level[4]	FTTW424					
SAMPLE ID					FT-GW424-3135	FT-GW424-3135-AVG	FT-GW424-3135-D	FT-GW424-4145	FT-GW424-5155	FT-GW424-6165
SAMPLE DATE					20110615	20110615	20110615	20110615	20110615	20110615
SAMPLE CODE					ORIGINAL	AVERAGE	DUPLICATE	NORMAL	NORMAL	NORMAL
MATRIX					GW	GW	GW	GW	GW	GW
TOP DEPTH (FEET)					31	31	31	41	51	61
BOTTOM DEPTH (FEET)					35	35	35	45	55	65
VOLATILES (UG/L)										
1,1,1-TRICHLOROETHANE	750 N	200	740 N	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1-DICHLOROETHANE	2.4 C	NA	6.6 C	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
2-BUTANONE	490 N	NA	NA	50	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
ACETONE	1,200 N	NA	NA	50	2.5 UJ	2.5 U	2.5 UJ	2.5 UJ	2.5 UJ	2.5 UJ
BROMOFORM	7.9 C	80	NA	50	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
CARBON DISULFIDE	72 N	NA	120 N	50	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
CHLOROETHANE	2,100 N	NA	2,300 N	5	0.5 UJ	0.5 U	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ
CHLOROFORM	**0.19 C**	80	**0.71 C**	50	0.5 U	0.5 U	0.5 U	0.5 U	**0.78** J	**1.2**
CHLOROMETHANE	19 N	NA	26 N	50	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
CIS-1,2-DICHLOROETHENE	2.8 N	70	NA	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
DICHLORODIFLUOROMETHANE	19 N	NA	0.74 N	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
ETHYLBENZENE	1.3 C	700	3 C	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
M+P-XYLENES	19 N[5]	10,000 [5]	NA	5	1 U	1 U	1 U	1 U	1 U	1 U
METHYLENE CHLORIDE	8.4 N[6]	5	39 C	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
O-XYLENE	19 N	10,000 [5]	49 N	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
TETRACHLOROETHENE	3.5 N[6]	5	0.57 C	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
TOLUENE	86 N	1,000	NA	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
TRICHLOROETHENE	**0.26 N[6]**	**5**	**0.52 N**	**5**	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U

Shaded cells indicate that the analyte concentration is greater than minimum screening criteria.

Notes:

1 - USEPA Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites, May, 2012. [Cancer benchmark value = 1E-06, Hazard index (HI) = 0.1].
2 - 2011 Edition of the Drinking Water Standards and Health Advisories (USEPA, January 2011).
3 - USEPA Vapor Intrusion Screening Level (VISL) Calculator, Version 1.0. November 2011 RSLs. Values correspond to a target cancer risk level of 1E-6 or HI = 0.1 and an attenuation factor of 0.001.
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5 - Value is for total xylenes.
6 - Ten percent of the noncarcinogenic value is less than the carcinogenic value; therefore the noncarcinogenic value is presented.

C = Carcinogenic.
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TABLE 4-8

SUMMARY OF POSITIVE DETECTIONS IN GROUNDWATER FROM TEMPORARY WELLS
COMPARISON TO SCREENING CRITERIA
SITE 2 - FIRE TRAINING AREA
NWIRP CALVERTON
CALVERTON, NEW YORK

LOCATION	Adjusted USEPA Regional Screening Level[1] Tap Water	USEPA Maximum Contaminant Level[2]	Adjusted Groundwater Volatilization USEPA Criteria[3]	NYSDOH Maximum Contaminant Level[4]	FTTW425				
SAMPLE ID					FT-GW425-2125	FT-GW425-3135	FT-GW425-4145	FT-GW425-5155	FT-GW425-6165
SAMPLE DATE					20110614	20110614	20110614	20110614	20110614
SAMPLE CODE					NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
MATRIX					GW	GW	GW	GW	GW
TOP DEPTH (FEET)					21	31	41	51	61
BOTTOM DEPTH (FEET)					25	35	45	55	65
VOLATILES (UG/L)									
1,1,1-TRICHLOROETHANE	750 N	200	740 N	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1-DICHLOROETHANE	2.4 C	NA	6.6 C	5	0.5 U	0.9 J	0.5 U	0.5 U	0.5 U
2-BUTANONE	490 N	NA	NA	50	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
ACETONE	1,200 N	NA	NA	50	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
BROMOFORM	7.9 C	80	NA	50	0.5 U	0.5 U	2.6 J	0.5 U	0.5 U
CARBON DISULFIDE	72 N	NA	120 N	50	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
CHLOROETHANE	2,100 N	NA	2,300 N	5	0.51 J	0.5 U	0.5 U	0.5 UJ	0.5 UJ
CHLOROFORM	**0.19 C**	80	**0.71 C**	50	0.5 U	0.5 U	0.5 U	**1.2**	**1**
CHLOROMETHANE	19 N	NA	26 N	50	0.77 J	0.61 J	0.5 U	0.5 U	0.5 U
CIS-1,2-DICHLOROETHENE	2.8 N	70	NA	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
DICHLORODIFLUOROMETHANE	19 N	NA	0.74 N	5	0.5 UJ	0.5 UJ	0.5 U	0.5 U	0.5 U
ETHYLBENZENE	1.3 C	700	3 C	5	0.5 U	0.72 J	0.5 U	0.5 U	0.5 U
M+P-XYLENES	19 N[5]	10,000 [5]	NA	5	1 U	1.4 J	1 U	1 U	1 U
METHYLENE CHLORIDE	8.4 N[6]	5	39 C	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
O-XYLENE	19 N	10,000 [5]	49 N	5	0.5 U	2.7	0.5 U	0.5 U	0.5 U
TETRACHLOROETHENE	3.5 N[6]	5	0.57 C	5	0.5 UJ	0.5 UJ	0.5 U	0.5 U	0.5 U
TOLUENE	86 N	1,000	NA	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
TRICHLOROETHENE	**0.26 N[6]**	**5**	**0.52 N**	**5**	0.5 U	**1.3**	0.5 U	0.5 U	0.5 U

Shaded cells indicate that the analyte concentration is greater than minimum screening criteria.

Notes:

1 - USEPA Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites, May, 2012. [Cancer benchmark value = 1E-06, Hazard index (HI) = 0.1].
2 - 2011 Edition of the Drinking Water Standards and Health Advisories (USEPA, January 2011).
3 - USEPA Vapor Intrusion Screening Level (VISL) Calculator, Version 1.0. November 2011 RSLs. Values correspond to a target cancer risk level of 1E-6 or HI = 0.1 and an attenuation factor of 0.001.
4 - New York State Department of Health (NYSDOH) Part 5, Subpart 5-1 Public Water Systems, Table 3 Organic Chemicals Maximum Contaminant Level (MCL) Determination, March 2010.
5 - Value is for total xylenes.
6 - Ten percent of the noncarcinogenic value is less than the carcinogenic value; therefore the noncarcinogenic value is presented.

C = Carcinogenic.
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MCL = Maximum Contaminant Level.
N = Noncarcinogenic.
NA = Not available.
ug/L = Microgram per liter.
USEPA = United States Environmental Protection Agency.

TABLE 4-8

SUMMARY OF POSITIVE DETECTIONS IN GROUNDWATER FROM TEMPORARY WELLS
COMPARISON TO SCREENING CRITERIA
SITE 2 - FIRE TRAINING AREA
NWIRP CALVERTON
CALVERTON, NEW YORK

LOCATION	Adjusted USEPA Regional Screening Level[1] Tap Water	USEPA Maximum Contaminant Level[2]	Adjusted Groundwater Volatilization USEPA Criteria[3]	NYSDOH Maximum Contaminant Level[4]	FTTW426						
SAMPLE ID					FT-GW426-2125	FT-GW426-3135	FT-GW426-4145	FT-GW426-4145-AVG	FT-GW426-4145-D	FT-GW426-5155	FT-GW426-6165
SAMPLE DATE					20110613	20110613	20110613	20110613	20110613	20110613	20110613
SAMPLE CODE					NORMAL	NORMAL	ORIGINAL	AVERAGE	DUPLICATE	NORMAL	NORMAL
MATRIX					GW	GW	GW	GW	GW	GW	GW
TOP DEPTH (FEET)					21	31	41	41	41	51	61
BOTTOM DEPTH (FEET)					25	35	45	45	45	55	65
VOLATILES (UG/L)											
1,1,1-TRICHLOROETHANE	750 N	200	740 N	5	0.5 U	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ
1,1-DICHLOROETHANE	2.4 C	NA	6.6 C	5	0.5 U	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ
2-BUTANONE	490 N	NA	NA	50	2.5 U	2.5 UJ	2.5 U	2.5 U	2.5 U	2.5 U	2.5 UJ
ACETONE	1,200 N	NA	NA	50	2.5 U	2.5 UJ	2.5 U	2.5 U	2.5 U	2.5 U	2.5 UJ
BROMOFORM	7.9 C	80	NA	50	0.5 U	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 UJ
CARBON DISULFIDE	72 N	NA	120 N	50	0.5 U	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ
CHLOROETHANE	2,100 N	NA	2,300 N	5	0.5 U	0.5 UJ	0.5 UJ	0.5 U	0.5 U	0.5 UJ	0.5 UJ
CHLOROFORM	**0.19 C**	80	**0.71 C**	50	0.5 U	0.5 UJ	**0.55** J	**0.55**	**0.55** J	**0.89** J	**0.53** J
CHLOROMETHANE	19 N	NA	26 N	50	0.5 U	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ
CIS-1,2-DICHLOROETHENE	2.8 N	70	NA	5	0.5 U	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ
DICHLORODIFLUOROMETHANE	19 N	NA	0.74 N	5	0.5 UJ	0.5 UJ	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 UJ
ETHYLBENZENE	1.3 C	700	3 C	5	0.5 U	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ
M+P-XYLENES	19 N[5]	10,000 [5]	NA	5	1 U	1 UJ	1 U	1 U	1 U	1 U	1 UJ
METHYLENE CHLORIDE	8.4 N[6]	5	39 C	5	0.5 U	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ
O-XYLENE	19 N	10,000 [5]	49 N	5	0.5 U	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ
TETRACHLOROETHENE	3.5 N[6]	5	0.57 C	5	0.5 UJ	0.5 UJ	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 UJ
TOLUENE	86 N	1,000	NA	5	0.5 U	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ
TRICHLOROETHENE	**0.26 N[6]**	**5**	**0.52 N**	**5**	0.5 U	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ

Shaded cells indicate that the analyte concentration is greater than minimum screening criteria.

Notes:

1 - USEPA Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites, May, 2012. [Cancer benchmark value = 1E-06, Hazard index (HI) = 0.1].
2 - 2011 Edition of the Drinking Water Standards and Health Advisories (USEPA, January 2011).
3 - USEPA Vapor Intrusion Screening Level (VISL) Calculator, Version 1.0. November 2011 RSLs. Values correspond to a target cancer risk level of 1E-6 or HI = 0.1 and an attenuation factor of 0.001.
4 - New York State Department of Health (NYSDOH) Part 5, Subpart 5-1 Public Water Systems, Table 3 Organic Chemicals Maximum Contaminant Level (MCL) Determination, March 2010.
5 - Value is for total xylenes.
6 - Ten percent of the noncarcinogenic value is less than the carcinogenic value; therefore the noncarcinogenic value is presented.

C = Carcinogenic.
GW = Groundwater
MCL = Maximum Contaminant Level.
N = Noncarcinogenic.
NA = Not available.
ug/L = Microgram per liter.
USEPA = United States Environmental Protection Agency.

TABLE 4-8

SUMMARY OF POSITIVE DETECTIONS IN GROUNDWATER FROM TEMPORARY WELLS
COMPARISON TO SCREENING CRITERIA
SITE 2 - FIRE TRAINING AREA
NWIRP CALVERTON
CALVERTON, NEW YORK

LOCATION	Adjusted USEPA Regional Screening Level[1] Tap Water	USEPA Maximum Contaminant Level[2]	Adjusted Groundwater Volatilization USEPA Criteria[3]	NYSDOH Maximum Contaminant Level[4]	FTTW427				
SAMPLE ID					FT-GW427-2125	FT-GW427-3135	FT-GW427-4145	FT-GW427-5155	FT-GW427-6165
SAMPLE DATE					20110613	20110613	20110613	20110613	20110613
SAMPLE CODE					NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
MATRIX					GW	GW	GW	GW	GW
TOP DEPTH (FEET)					21	31	41	51	61
BOTTOM DEPTH (FEET)					25	35	45	55	65
VOLATILES (UG/L)									
1,1,1-TRICHLOROETHANE	750 N	200	740 N	5	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 U
1,1-DICHLOROETHANE	2.4 C	NA	6.6 C	5	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 U
2-BUTANONE	490 N	NA	NA	50	2.5 UJ	2.5 U	2.5 U	2.5 U	2.5 U
ACETONE	1,200 N	NA	NA	50	2.5 UJ	2.5 U	2.5 U	2.5 U	2.5 U
BROMOFORM	7.9 C	80	NA	50	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 U
CARBON DISULFIDE	72 N	NA	120 N	50	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 U
CHLOROETHANE	2,100 N	NA	2,300 N	5	0.5 UJ	0.5 UJ	0.5 U	0.5 U	0.5 U
CHLOROFORM	**0.19 C**	80	**0.71 C**	50	0.5 UJ	0.5 U	0.5 U	0.5 U	**2.4**
CHLOROMETHANE	19 N	NA	26 N	50	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 U
CIS-1,2-DICHLOROETHENE	2.8 N	70	NA	5	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 U
DICHLORODIFLUOROMETHANE	19 N	NA	0.74 N	5	0.5 UJ	0.5 U	0.5 UJ	0.5 UJ	0.5 UJ
ETHYLBENZENE	1.3 C	700	3 C	5	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 U
M+P-XYLENES	19 N[5]	10,000 [5]	NA	5	1 UJ	1 U	1 U	1 U	1 U
METHYLENE CHLORIDE	8.4 N[6]	5	39 C	5	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 U
O-XYLENE	19 N	10,000 [5]	49 N	5	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 U
TETRACHLOROETHENE	3.5 N[6]	5	0.57 C	5	0.5 UJ	0.5 U	0.5 UJ	0.5 UJ	0.5 UJ
TOLUENE	86 N	1,000	NA	5	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 U
TRICHLOROETHENE	**0.26 N[6]**	**5**	**0.52 N**	**5**	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 U

Shaded cells indicate that the analyte concentration is greater than minimum screening criteria.

Notes:

1 - USEPA Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites, May, 2012. [Cancer benchmark value = 1E-06, Hazard index (HI) = 0.1].
2 - 2011 Edition of the Drinking Water Standards and Health Advisories (USEPA, January 2011).
3 - USEPA Vapor Intrusion Screening Level (VISL) Calculator, Version 1.0. November 2011 RSLs. Values correspond to a target cancer risk level of 1E-6 or HI = 0.1 and an attenuation factor of 0.001.
4 - New York State Department of Health (NYSDOH) Part 5, Subpart 5-1 Public Water Systems, Table 3 Organic Chemicals Maximum Contaminant Level (MCL) Determination, March 2010.
5 - Value is for total xylenes.
6 - Ten percent of the noncarcinogenic value is less than the carcinogenic value; therefore the noncarcinogenic value is presented.

C = Carcinogenic.
GW = Groundwater
MCL = Maximum Contaminant Level.
N = Noncarcinogenic.
NA = Not available.
ug/L = Microgram per liter.
USEPA = United States Environmental Protection Agency.

TABLE 4-8

SUMMARY OF POSITIVE DETECTIONS IN GROUNDWATER FROM TEMPORARY WELLS
COMPARISON TO SCREENING CRITERIA
SITE 2 - FIRE TRAINING AREA
NWIRP CALVERTON
CALVERTON, NEW YORK

LOCATION	Adjusted USEPA Regional Screening Level[1] Tap Water	USEPA Maximum Contaminant Level[2]	Adjusted Groundwater Volatilization USEPA Criteria[3]	NYSDOH Maximum Contaminant Level[4]	FTGW428					
SAMPLE ID					FT-GW428-2125	FT-GW428-3135	FT-GW428-4145	FT-GW428-5155	FT-GW428-6165	FT-GW428-7175
SAMPLE DATE					20111013	20111013	20111013	20111013	20111013	20111013
SAMPLE CODE					NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
MATRIX					GW	GW	GW	GW	GW	GW
TOP DEPTH (FEET)					21	31	41	51	61	71
BOTTOM DEPTH (FEET)					25	35	45	55	65	75
VOLATILES (UG/L)										
1,1,1-TRICHLOROETHANE	750 N	200	740 N	5	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 U	0.5 U
1,1-DICHLOROETHANE	2.4 C	NA	6.6 C	5	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 U	0.5 U
2-BUTANONE	490 N	NA	NA	50	2.5 U	2.5 U	2.5 UJ	2.5 U	2.5 U	2.5 U
ACETONE	1,200 N	NA	NA	50	2.5 U	2.5 U	2.5 UJ	2.5 U	2.5 U	2.5 U
BROMOFORM	7.9 C	80	NA	50	NA	NA	NA	NA	NA	NA
CARBON DISULFIDE	72 N	NA	120 N	50	NA	NA	NA	NA	NA	NA
CHLOROETHANE	2,100 N	NA	2,300 N	5	NA	NA	NA	NA	NA	NA
CHLOROFORM	**0.19 C**	80	**0.71 C**	50	NA	NA	NA	NA	NA	NA
CHLOROMETHANE	19 N	NA	26 N	50	NA	NA	NA	NA	NA	NA
CIS-1,2-DICHLOROETHENE	2.8 N	70	NA	5	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 U	0.5 U
DICHLORODIFLUOROMETHANE	19 N	NA	0.74 N	5	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 U	0.5 U
ETHYLBENZENE	1.3 C	700	3 C	5	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 U	0.5 U
M+P-XYLENES	19 N[5]	10,000 [5]	NA	5	1 U	1 U	1 UJ	1 U	1 U	1 U
METHYLENE CHLORIDE	8.4 N[6]	5	39 C	5	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 U	0.5 U
O-XYLENE	19 N	10,000 [5]	49 N	5	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 U	0.5 U
TETRACHLOROETHENE	3.5 N[6]	5	0.57 C	5	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 U	0.5 U
TOLUENE	86 N	1,000	NA	5	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 U	0.5 U
TRICHLOROETHENE	**0.26 N[6]**	**5**	**0.52 N**	**5**	**5.2**	**0.94** J	0.5 UJ	0.5 U	0.5 U	0.5 U

Shaded cells indicate that the analyte concentration is greater than minimum screening criteria.

Notes:

1 - USEPA Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites, May, 2012. [Cancer benchmark value = 1E-06, Hazard index (HI) = 0.1].
2 - 2011 Edition of the Drinking Water Standards and Health Advisories (USEPA, January 2011).
3 - USEPA Vapor Intrusion Screening Level (VISL) Calculator, Version 1.0. November 2011 RSLs. Values correspond to a target cancer risk level of 1E-6 or HI = 0.1 and an attenuation factor of 0.001.
4 - New York State Department of Health (NYSDOH) Part 5, Subpart 5-1 Public Water Systems, Table 3 Organic Chemicals Maximum Contaminant Level (MCL) Determination, March 2010.
5 - Value is for total xylenes.
6 - Ten percent of the noncarcinogenic value is less than the carcinogenic value; therefore the noncarcinogenic value is presented.

C = Carcinogenic.
GW = Groundwater
MCL = Maximum Contaminant Level.
N = Noncarcinogenic.
NA = Not available.
ug/L = Microgram per liter.
USEPA = United States Environmental Protection Agency.

TABLE 4-8

SUMMARY OF POSITIVE DETECTIONS IN GROUNDWATER FROM TEMPORARY WELLS
COMPARISON TO SCREENING CRITERIA
SITE 2 - FIRE TRAINING AREA
NWIRP CALVERTON
CALVERTON, NEW YORK

LOCATION	Adjusted USEPA Regional Screening Level[1] Tap Water	USEPA Maximum Contaminant Level[2]	Adjusted Groundwater Volatilization USEPA Criteria[3]	NYSDOH Maximum Contaminant Level[4]	FTGW429					
SAMPLE ID					FT-GW429-2125	FT-GW429-3135	FT-GW429-3135-AVG	FT-GW429-3135-D	FT-GW429-4145	FT-GW429-5155
SAMPLE DATE					20111014	20111014	20111014	20111014	20111014	20111013
SAMPLE CODE					NORMAL	ORIG	AVG	DUP	NORMAL	NORMAL
MATRIX					GW	GW	GW	GW	GW	GW
TOP DEPTH (FEET)					21	31	31	31	41	51
BOTTOM DEPTH (FEET)					25	35	35	35	45	55
VOLATILES (UG/L)										
1,1,1-TRICHLOROETHANE	750 N	200	740 N	5	0.5 U	0.5 UJ	0.5 U	0.5 UJ	0.5 UJ	0.5 UJ
1,1-DICHLOROETHANE	2.4 C	NA	6.6 C	5	0.5 U	0.5 UJ	0.5 U	0.5 UJ	0.5 UJ	0.5 UJ
2-BUTANONE	490 N	NA	NA	50	2.5 U	2.5 UJ	2.5 U	2.5 UJ	2.5 UJ	2.5 UJ
ACETONE	1,200 N	NA	NA	50	2.5 U	2.5 UJ	2.5 U	2.5 UJ	2.5 UJ	2.5 UJ
BROMOFORM	7.9 C	80	NA	50	NA	NA	NA	NA	NA	NA
CARBON DISULFIDE	72 N	NA	120 N	50	NA	NA	NA	NA	NA	NA
CHLOROETHANE	2,100 N	NA	2,300 N	5	NA	NA	NA	NA	NA	NA
CHLOROFORM	**0.19 C**	80	**0.71 C**	50	NA	NA	NA	NA	NA	NA
CHLOROMETHANE	19 N	NA	26 N	50	NA	NA	NA	NA	NA	NA
CIS-1,2-DICHLOROETHENE	2.8 N	70	NA	5	0.5 U	0.5 UJ	0.5 U	0.5 UJ	0.5 UJ	0.5 UJ
DICHLORODIFLUOROMETHANE	19 N	NA	0.74 N	5	0.5 U	0.5 UJ	0.5 U	0.5 UJ	0.5 UJ	0.5 UJ
ETHYLBENZENE	1.3 C	700	3 C	5	0.5 U	0.5 UJ	0.5 U	0.5 UJ	0.5 UJ	0.5 UJ
M+P-XYLENES	19 N[5]	10,000 [5]	NA	5	1 U	1 UJ	1 U	1 UJ	1 UJ	1 UJ
METHYLENE CHLORIDE	8.4 N[6]	5	39 C	5	0.5 U	0.5 UJ	0.5 U	0.5 UJ	0.5 UJ	0.5 UJ
O-XYLENE	19 N	10,000 [5]	49 N	5	0.5 U	0.5 UJ	0.5 U	0.5 UJ	0.5 UJ	0.5 UJ
TETRACHLOROETHENE	3.5 N[6]	5	0.57 C	5	0.5 U	0.5 UJ	0.5 U	0.5 UJ	0.5 UJ	0.5 UJ
TOLUENE	86 N	1,000	NA	5	0.5 U	0.5 UJ	0.5 U	0.5 UJ	0.5 UJ	0.5 UJ
TRICHLOROETHENE	**0.26 N[6]**	**5**	**0.52 N**	**5**	0.5 U	0.5 UJ	0.5 U	0.5 UJ	0.5 UJ	0.5 UJ

Shaded cells indicate that the analyte concentration is greater than minimum screening criteria.

Notes:

1 - USEPA Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites, May, 2012. [Cancer benchmark value = 1E-06, Hazard index (HI) = 0.1].
2 - 2011 Edition of the Drinking Water Standards and Health Advisories (USEPA, January 2011).
3 - USEPA Vapor Intrusion Screening Level (VISL) Calculator, Version 1.0. November 2011 RSLs. Values correspond to a target cancer risk level of 1E-6 or HI = 0.1 and an attenuation factor of 0.001.
4 - New York State Department of Health (NYSDOH) Part 5, Subpart 5-1 Public Water Systems, Table 3 Organic Chemicals Maximum Contaminant Level (MCL) Determination, March 2010.
5 - Value is for total xylenes.
6 - Ten percent of the noncarcinogenic value is less than the carcinogenic value; therefore the noncarcinogenic value is presented.

C = Carcinogenic.
GW = Groundwater
MCL = Maximum Contaminant Level.
N = Noncarcinogenic.
NA = Not available.
ug/L = Microgram per liter.
USEPA = United States Environmental Protection Agency.

TABLE 4-8

SUMMARY OF POSITIVE DETECTIONS IN GROUNDWATER FROM TEMPORARY WELLS
COMPARISON TO SCREENING CRITERIA
SITE 2 - FIRE TRAINING AREA
NWIRP CALVERTON
CALVERTON, NEW YORK

LOCATION	Adjusted USEPA Regional Screening Level[1] Tap Water	USEPA Maximum Contaminant Level[2]	Adjusted Groundwater Volatilization USEPA Criteria[3]	NYSDOH Maximum Contaminant Level[4]	FTGW429				FTGW430	
SAMPLE ID					FT-GW429-6165	FT-GW429-7175	FT-GW429-7175-AVG	FT-GW429-7175-D	FT-GW430-2125	FT-GW430-3135
SAMPLE DATE					20111013	20111013	20111013	20111013	20111017	20111017
SAMPLE CODE					NORMAL	ORIG	AVG	DUP	NORMAL	NORMAL
MATRIX					GW	GW	GW	GW	GW	GW
TOP DEPTH (FEET)					61	71	71	71	21	31
BOTTOM DEPTH (FEET)					65	75	75	75	25	35
VOLATILES (UG/L)										
1,1,1-TRICHLOROETHANE	750 N	200	740 N	5	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 UJ
1,1-DICHLOROETHANE	2.4 C	NA	6.6 C	5	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 UJ
2-BUTANONE	490 N	NA	NA	50	2.5 U	2.5 U	2.5 U	2.5 UJ	2.5 U	2.5 UJ
ACETONE	1,200 N	NA	NA	50	2.5 U	2.5 U	2.5 U	2.5 UJ	2.5 UJ	2.5 UJ
BROMOFORM	7.9 C	80	NA	50	NA	NA	NA	NA	NA	NA
CARBON DISULFIDE	72 N	NA	120 N	50	NA	NA	NA	NA	NA	NA
CHLOROETHANE	2,100 N	NA	2,300 N	5	NA	NA	NA	NA	NA	NA
CHLOROFORM	**0.19 C**	80	**0.71 C**	50	NA	NA	NA	NA	NA	NA
CHLOROMETHANE	19 N	NA	26 N	50	NA	NA	NA	NA	NA	NA
CIS-1,2-DICHLOROETHENE	2.8 N	70	NA	5	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 UJ
DICHLORODIFLUOROMETHANE	19 N	NA	0.74 N	5	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 UJ
ETHYLBENZENE	1.3 C	700	3 C	5	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 UJ
M+P-XYLENES	19 N[5]	10,000 [5]	NA	5	1 U	1 U	1 U	1 UJ	1 U	1 UJ
METHYLENE CHLORIDE	8.4 N[6]	5	39 C	5	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 UJ
O-XYLENE	19 N	10,000 [5]	49 N	5	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 UJ
TETRACHLOROETHENE	3.5 N[6]	5	0.57 C	5	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 UJ
TOLUENE	86 N	1,000	NA	5	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 UJ
TRICHLOROETHENE	**0.26 N[6]**	**5**	**0.52 N**	**5**	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 UJ

Shaded cells indicate that the analyte concentration is greater than minimum screening criteria.

Notes:

1 - USEPA Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites, May, 2012. [Cancer benchmark value = 1E-06, Hazard index (HI) = 0.1].
2 - 2011 Edition of the Drinking Water Standards and Health Advisories (USEPA, January 2011).
3 - USEPA Vapor Intrusion Screening Level (VISL) Calculator, Version 1.0. November 2011 RSLs. Values correspond to a target cancer risk level of 1E-6 or HI = 0.1 and an attenuation factor of 0.001.
4 - New York State Department of Health (NYSDOH) Part 5, Subpart 5-1 Public Water Systems, Table 3 Organic Chemicals Maximum Contaminant Level (MCL) Determination, March 2010.
5 - Value is for total xylenes.
6 - Ten percent of the noncarcinogenic value is less than the carcinogenic value; therefore the noncarcinogenic value is presented.

C = Carcinogenic.
GW = Groundwater
MCL = Maximum Contaminant Level.
N = Noncarcinogenic.
NA = Not available.
ug/L = Microgram per liter.
USEPA = United States Environmental Protection Agency.

TABLE 4-8

SUMMARY OF POSITIVE DETECTIONS IN GROUNDWATER FROM TEMPORARY WELLS
COMPARISON TO SCREENING CRITERIA
SITE 2 - FIRE TRAINING AREA
NWIRP CALVERTON
CALVERTON, NEW YORK

LOCATION	Adjusted USEPA Regional Screening Level[1] Tap Water	USEPA Maximum Contaminant Level[2]	Adjusted Groundwater Volatilization USEPA Criteria[3]	NYSDOH Maximum Contaminant Level[4]	FTGW430				FTGW431	
SAMPLE ID					FT-GW430-4145	FT-GW430-5155	FT-GW430-6165	FT-GW430-7175	FT-GW431-2125	FT-GW431-3135
SAMPLE DATE					20111017	20111017	20111017	20111017	20111020	20111020
SAMPLE CODE					NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
MATRIX					GW	GW	GW	GW	GW	GW
TOP DEPTH (FEET)					41	51	61	71	21	31
BOTTOM DEPTH (FEET)					45	55	65	75	25	35
VOLATILES (UG/L)										
1,1,1-TRICHLOROETHANE	750 N	200	740 N	5	0.5 UJ	0.5 UJ	0.5 U	0.5 UJ	0.5 UJ	0.5 UJ
1,1-DICHLOROETHANE	2.4 C	NA	6.6 C	5	0.5 UJ	0.5 UJ	0.5 U	0.5 UJ	0.5 UJ	0.5 UJ
2-BUTANONE	490 N	NA	NA	50	2.5 UJ	2.5 UJ	2.5 U	2.5 UJ	2.5 UJ	2.5 UJ
ACETONE	1,200 N	NA	NA	50	2.5 UJ	2.5 UJ	2.5 UJ	2.5 UJ	2.5 UJ	2.5 UJ
BROMOFORM	7.9 C	80	NA	50	NA	NA	NA	NA	NA	NA
CARBON DISULFIDE	72 N	NA	120 N	50	NA	NA	NA	NA	NA	NA
CHLOROETHANE	2,100 N	NA	2,300 N	5	NA	NA	NA	NA	NA	NA
CHLOROFORM	**0.19 C**	80	**0.71 C**	50	NA	NA	NA	NA	NA	NA
CHLOROMETHANE	19 N	NA	26 N	50	NA	NA	NA	NA	NA	NA
CIS-1,2-DICHLOROETHENE	2.8 N	70	NA	5	0.5 UJ	0.5 UJ	0.5 U	0.5 UJ	0.5 UJ	0.5 UJ
DICHLORODIFLUOROMETHANE	19 N	NA	0.74 N	5	0.5 UJ	0.5 UJ	0.5 U	0.5 UJ	0.5 UJ	0.5 UJ
ETHYLBENZENE	1.3 C	700	3 C	5	0.5 UJ	0.5 UJ	0.5 U	0.5 UJ	0.5 UJ	0.5 UJ
M+P-XYLENES	19 N[5]	10,000 [5]	NA	5	1 UJ	1 UJ	1 U	1 UJ	1 UJ	1 UJ
METHYLENE CHLORIDE	8.4 N[6]	5	39 C	5	0.5 UJ	0.5 UJ	0.5 U	0.5 UJ	0.5 UJ	0.5 UJ
O-XYLENE	19 N	10,000 [5]	49 N	5	0.5 UJ	0.5 UJ	0.5 U	0.5 UJ	0.5 UJ	0.5 UJ
TETRACHLOROETHENE	3.5 N[6]	5	0.57 C	5	0.5 UJ	0.5 UJ	0.5 U	0.5 UJ	0.5 UJ	0.5 UJ
TOLUENE	86 N	1,000	NA	5	0.5 UJ	0.5 UJ	0.5 U	0.5 UJ	0.5 UJ	0.5 UJ
TRICHLOROETHENE	**0.26 N[6]**	**5**	**0.52 N**	**5**	0.5 UJ	0.5 UJ	0.5 U	0.5 UJ	0.5 UJ	0.5 UJ

Shaded cells indicate that the analyte concentration is greater than minimum screening criteria.

Notes:

1 - USEPA Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites, May, 2012. [Cancer benchmark value = 1E-06, Hazard index (HI) = 0.1].
2 - 2011 Edition of the Drinking Water Standards and Health Advisories (USEPA, January 2011).
3 - USEPA Vapor Intrusion Screening Level (VISL) Calculator, Version 1.0. November 2011 RSLs. Values correspond to a target cancer risk level of 1E-6 or HI = 0.1 and an attenuation factor of 0.001.
4 - New York State Department of Health (NYSDOH) Part 5, Subpart 5-1 Public Water Systems, Table 3 Organic Chemicals Maximum Contaminant Level (MCL) Determination, March 2010.
5 - Value is for total xylenes.
6 - Ten percent of the noncarcinogenic value is less than the carcinogenic value; therefore the noncarcinogenic value is presented.

C = Carcinogenic.
GW = Groundwater
MCL = Maximum Contaminant Level.
N = Noncarcinogenic.
NA = Not available.
ug/L = Microgram per liter.
USEPA = United States Environmental Protection Agency.

TABLE 4-8

SUMMARY OF POSITIVE DETECTIONS IN GROUNDWATER FROM TEMPORARY WELLS
COMPARISON TO SCREENING CRITERIA
SITE 2 - FIRE TRAINING AREA
NWIRP CALVERTON
CALVERTON, NEW YORK

LOCATION	Adjusted USEPA Regional Screening Level[1] Tap Water	USEPA Maximum Contaminant Level[2]	Adjusted Groundwater Volatilization USEPA Criteria[3]	NYSDOH Maximum Contaminant Level[4]	FTGW431					
SAMPLE ID					FT-GW431-4145	FT-GW431-5155	FT-GW431-5155-AVG	FT-GW431-5155-D	FT-GW431-6165	FT-GW431-7175
SAMPLE DATE					20111020	20111020	20111020	20111020	20111020	20111020
SAMPLE CODE					NORMAL	ORIG	AVG	DUP	NORMAL	NORMAL
MATRIX					GW	GW	GW	GW	GW	GW
TOP DEPTH (FEET)					41	51	51	51	61	71
BOTTOM DEPTH (FEET)					45	55	55	55	65	75
VOLATILES (UG/L)										
1,1,1-TRICHLOROETHANE	750 N	200	740 N	5	0.5 UJ	0.5 UJ	0.5 U	0.5 UJ	0.5 UJ	0.5 UJ
1,1-DICHLOROETHANE	2.4 C	NA	6.6 C	5	0.5 UJ	0.5 UJ	0.5 U	0.5 UJ	0.5 UJ	0.5 UJ
2-BUTANONE	490 N	NA	NA	50	2.5 UJ	2.5 UJ	2.5 U	2.5 UJ	2.5 UJ	2.5 UJ
ACETONE	1,200 N	NA	NA	50	2.5 UJ	2.5 UJ	2.5 U	2.5 UJ	2.5 UJ	2.5 UJ
BROMOFORM	7.9 C	80	NA	50	NA	NA	NA	NA	NA	NA
CARBON DISULFIDE	72 N	NA	120 N	50	NA	NA	NA	NA	NA	NA
CHLOROETHANE	2,100 N	NA	2,300 N	5	NA	NA	NA	NA	NA	NA
CHLOROFORM	**0.19 C**	80	**0.71 C**	50	NA	NA	NA	NA	NA	NA
CHLOROMETHANE	19 N	NA	26 N	50	NA	NA	NA	NA	NA	NA
CIS-1,2-DICHLOROETHENE	2.8 N	70	NA	5	0.5 UJ	0.5 UJ	0.5 U	0.5 UJ	0.5 UJ	0.5 UJ
DICHLORODIFLUOROMETHANE	19 N	NA	0.74 N	5	0.5 UJ	0.5 UJ	0.5 U	0.5 UJ	0.5 UJ	0.5 UJ
ETHYLBENZENE	1.3 C	700	3 C	5	0.5 UJ	0.5 UJ	0.5 U	0.5 UJ	0.5 UJ	0.5 UJ
M+P-XYLENES	19 N[5]	10,000 [5]	NA	5	1 UJ	1 UJ	1 U	1 UJ	1 UJ	1 UJ
METHYLENE CHLORIDE	8.4 N[6]	5	39 C	5	0.5 UJ	0.5 UJ	0.5 U	0.5 UJ	0.5 UJ	0.5 UJ
O-XYLENE	19 N	10,000 [5]	49 N	5	0.5 UJ	0.5 UJ	0.5 U	0.5 UJ	0.5 UJ	0.5 UJ
TETRACHLOROETHENE	3.5 N[6]	5	0.57 C	5	0.5 UJ	0.5 UJ	0.5 U	0.5 UJ	0.5 UJ	0.5 UJ
TOLUENE	86 N	1,000	NA	5	0.5 UJ	0.5 UJ	0.5 U	0.5 UJ	0.5 UJ	0.5 UJ
TRICHLOROETHENE	**0.26 N[6]**	**5**	**0.52 N**	**5**	0.5 UJ	0.5 UJ	0.5 U	0.5 UJ	0.5 UJ	0.5 UJ

Shaded cells indicate that the analyte concentration is greater than minimum screening criteria.

Notes:

1 - USEPA Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites, May, 2012. [Cancer benchmark value = 1E-06, Hazard index (HI) = 0.1].
2 - 2011 Edition of the Drinking Water Standards and Health Advisories (USEPA, January 2011).
3 - USEPA Vapor Intrusion Screening Level (VISL) Calculator, Version 1.0. November 2011 RSLs. Values correspond to a target cancer risk level of 1E-6 or HI = 0.1 and an attenuation factor of 0.001.
4 - New York State Department of Health (NYSDOH) Part 5, Subpart 5-1 Public Water Systems, Table 3 Organic Chemicals Maximum Contaminant Level (MCL) Determination, March 2010.
5 - Value is for total xylenes.
6 - Ten percent of the noncarcinogenic value is less than the carcinogenic value; therefore the noncarcinogenic value is presented.

C = Carcinogenic.
GW = Groundwater
MCL = Maximum Contaminant Level.
N = Noncarcinogenic.
NA = Not available.
ug/L = Microgram per liter.
USEPA = United States Environmental Protection Agency.

TABLE 4-8

SUMMARY OF POSITIVE DETECTIONS IN GROUNDWATER FROM TEMPORARY WELLS
COMPARISON TO SCREENING CRITERIA
SITE 2 - FIRE TRAINING AREA
NWIRP CALVERTON
CALVERTON, NEW YORK

LOCATION	Adjusted USEPA Regional Screening Level[1] Tap Water	USEPA Maximum Contaminant Level[2]	Adjusted Groundwater Volatilization USEPA Criteria[3]	NYSDOH Maximum Contaminant Level[4]	FTGW432					
SAMPLE ID					FT-GW432-2630	FT-GW432-3135	FT-GW432-4145	FT-GW432-5155	FT-GW432-5155-AVG	FT-GW432-5155-D
SAMPLE DATE					20111021	20111020	20111021	20111021	20111021	20111021
SAMPLE CODE					NORMAL	NORMAL	NORMAL	ORIG	AVG	DUP
MATRIX					GW	GW	GW	GW	GW	GW
TOP DEPTH (FEET)					26	31	41	51	51	51
BOTTOM DEPTH (FEET)					30	35	45	55	55	55
VOLATILES (UG/L)										
1,1,1-TRICHLOROETHANE	750 N	200	740 N	5	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 U	0.5 UJ
1,1-DICHLOROETHANE	2.4 C	NA	6.6 C	5	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 U	0.5 UJ
2-BUTANONE	490 N	NA	NA	50	2.5 UJ	2.5 UJ	2.5 UJ	2.5 UJ	2.5 U	2.5 UJ
ACETONE	1,200 N	NA	NA	50	2.5 UJ	2.5 UJ	2.5 UJ	2.5 UJ	2.5 U	2.5 UJ
BROMOFORM	7.9 C	80	NA	50	NA	NA	NA	NA	NA	NA
CARBON DISULFIDE	72 N	NA	120 N	50	NA	NA	NA	NA	NA	NA
CHLOROETHANE	2,100 N	NA	2,300 N	5	NA	NA	NA	NA	NA	NA
CHLOROFORM	**0.19 C**	80	**0.71 C**	50	NA	NA	NA	NA	NA	NA
CHLOROMETHANE	19 N	NA	26 N	50	NA	NA	NA	NA	NA	NA
CIS-1,2-DICHLOROETHENE	2.8 N	70	NA	5	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 U	0.5 UJ
DICHLORODIFLUOROMETHANE	19 N	NA	0.74 N	5	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.6	**0.95** J
ETHYLBENZENE	1.3 C	700	3 C	5	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 U	0.5 UJ
M+P-XYLENES	19 N[5]	10,000 [5]	NA	5	1 UJ	1 UJ	1 UJ	1 UJ	1 U	1 UJ
METHYLENE CHLORIDE	8.4 N[6]	5	39 C	5	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	2.675	**5.1** J
O-XYLENE	19 N	10,000 [5]	49 N	5	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 U	0.5 UJ
TETRACHLOROETHENE	3.5 N[6]	5	0.57 C	5	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 U	0.5 UJ
TOLUENE	86 N	1,000	NA	5	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 U	0.5 UJ
TRICHLOROETHENE	**0.26 N[6]**	**5**	**0.52 N**	**5**	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 U	0.5 UJ

Shaded cells indicate that the analyte concentration is greater than minimum screening criteria.

Notes:

1 - USEPA Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites, May, 2012. [Cancer benchmark value = 1E-06, Hazard index (HI) = 0.1].
2 - 2011 Edition of the Drinking Water Standards and Health Advisories (USEPA, January 2011).
3 - USEPA Vapor Intrusion Screening Level (VISL) Calculator, Version 1.0. November 2011 RSLs. Values correspond to a target cancer risk level of 1E-6 or HI = 0.1 and an attenuation factor of 0.001.
4 - New York State Department of Health (NYSDOH) Part 5, Subpart 5-1 Public Water Systems, Table 3 Organic Chemicals Maximum Contaminant Level (MCL) Determination, March 2010.
5 - Value is for total xylenes.
6 - Ten percent of the noncarcinogenic value is less than the carcinogenic value; therefore the noncarcinogenic value is presented.

C = Carcinogenic.
GW = Groundwater
MCL = Maximum Contaminant Level.
N = Noncarcinogenic.
NA = Not available.
ug/L = Microgram per liter.
USEPA = United States Environmental Protection Agency.

TABLE 4-8

SUMMARY OF POSITIVE DETECTIONS IN GROUNDWATER FROM TEMPORARY WELLS
COMPARISON TO SCREENING CRITERIA
SITE 2 - FIRE TRAINING AREA
NWIRP CALVERTON
CALVERTON, NEW YORK

LOCATION	Adjusted USEPA Regional Screening Level[1] Tap Water	USEPA Maximum Contaminant Level[2]	Adjusted Groundwater Volatilization USEPA Criteria[3]	NYSDOH Maximum Contaminant Level[4]	FTGW432		FTGW433			
SAMPLE ID					FT-GW432-6165	FT-GW432-7175	FT-GW433-2630	FT-GW433-3135	FT-GW433-4145	FT-GW433-5155
SAMPLE DATE					20111020	20111020	20111021	20111021	20111024	20111024
SAMPLE CODE					NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
MATRIX					GW	GW	GW	GW	GW	GW
TOP DEPTH (FEET)					61	71	26	31	41	51
BOTTOM DEPTH (FEET)					65	75	30	35	45	55
VOLATILES (UG/L)										
1,1,1-TRICHLOROETHANE	750 N	200	740 N	5	0.5 UJ	0.5 UJ	0.5 UJ	0.5 U	0.5 UJ	0.5 UJ
1,1-DICHLOROETHANE	2.4 C	NA	6.6 C	5	0.5 UJ	0.5 UJ	0.5 UJ	0.5 U	0.5 UJ	0.5 UJ
2-BUTANONE	490 N	NA	NA	50	2.5 UJ	2.5 UJ	2.5 UJ	2.5 U	2.5 UJ	2.5 UJ
ACETONE	1,200 N	NA	NA	50	2.5 UJ	2.5 UJ	2.5 UJ	2.5 U	2.5 UJ	2.5 UJ
BROMOFORM	7.9 C	80	NA	50	NA	NA	NA	NA	NA	NA
CARBON DISULFIDE	72 N	NA	120 N	50	NA	NA	NA	NA	NA	NA
CHLOROETHANE	2,100 N	NA	2,300 N	5	NA	NA	NA	NA	NA	NA
CHLOROFORM	**0.19 C**	80	**0.71 C**	50	NA	NA	NA	NA	NA	NA
CHLOROMETHANE	19 N	NA	26 N	50	NA	NA	NA	NA	NA	NA
CIS-1,2-DICHLOROETHENE	2.8 N	70	NA	5	0.5 UJ	0.5 UJ	0.5 UJ	0.5 U	0.5 UJ	0.5 UJ
DICHLORODIFLUOROMETHANE	19 N	NA	0.74 N	5	**1.4** J	0.5 UJ	**1** J	0.5 U	0.5 UJ	0.5 UJ
ETHYLBENZENE	1.3 C	700	3 C	5	0.5 UJ	0.5 UJ	0.5 UJ	0.5 U	0.5 UJ	0.5 UJ
M+P-XYLENES	19 N[5]	10,000 [5]	NA	5	1 UJ	1 UJ	1 UJ	1 U	1 UJ	1 UJ
METHYLENE CHLORIDE	8.4 N[6]	5	39 C	5	**6.7** J	0.5 UJ	**6.4** J	1.7	0.5 UJ	0.5 UJ
O-XYLENE	19 N	10,000 [5]	49 N	5	0.5 UJ	0.5 UJ	0.5 UJ	0.5 U	0.5 UJ	0.5 UJ
TETRACHLOROETHENE	3.5 N[6]	5	0.57 C	5	0.5 UJ	0.5 UJ	0.5 UJ	0.5 U	0.5 UJ	0.5 UJ
TOLUENE	86 N	1,000	NA	5	0.5 UJ	0.5 UJ	0.5 UJ	0.5 U	0.5 UJ	0.5 UJ
TRICHLOROETHENE	**0.26 N[6]**	**5**	**0.52 N**	**5**	0.5 UJ	0.5 UJ	0.5 UJ	0.5 U	0.5 UJ	0.5 UJ

Shaded cells indicate that the analyte concentration is greater than minimum screening criteria.

Notes:

1 - USEPA Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites, May, 2012. [Cancer benchmark value = 1E-06, Hazard index (HI) = 0.1].
2 - 2011 Edition of the Drinking Water Standards and Health Advisories (USEPA, January 2011).
3 - USEPA Vapor Intrusion Screening Level (VISL) Calculator, Version 1.0. November 2011 RSLs. Values correspond to a target cancer risk level of 1E-6 or HI = 0.1 and an attenuation factor of 0.001.
4 - New York State Department of Health (NYSDOH) Part 5, Subpart 5-1 Public Water Systems, Table 3 Organic Chemicals Maximum Contaminant Level (MCL) Determination, March 2010.
5 - Value is for total xylenes.
6 - Ten percent of the noncarcinogenic value is less than the carcinogenic value; therefore the noncarcinogenic value is presented.

C = Carcinogenic.
GW = Groundwater
MCL = Maximum Contaminant Level.
N = Noncarcinogenic.
NA = Not available.
ug/L = Microgram per liter.
USEPA = United States Environmental Protection Agency.

TABLE 4-8

SUMMARY OF POSITIVE DETECTIONS IN GROUNDWATER FROM TEMPORARY WELLS
COMPARISON TO SCREENING CRITERIA
SITE 2 - FIRE TRAINING AREA
NWIRP CALVERTON
CALVERTON, NEW YORK

LOCATION	Adjusted USEPA Regional Screening Level[1] Tap Water	USEPA Maximum Contaminant Level[2]	Adjusted Groundwater Volatilization USEPA Criteria[3]	NYSDOH Maximum Contaminant Level[4]	FTGW433		FTGW434			
SAMPLE ID					FT-GW433-5963	FT-GW433-7175	FT-GW434-2630	FT-GW434-2630-AVG	FT-GW434-2630-D	FT-GW434-3135
SAMPLE DATE					20111024	20111024	20111025	20111025	20111025	20111025
SAMPLE CODE					NORMAL	NORMAL	ORIG	AVG	DUP	NORMAL
MATRIX					GW	GW	GW	GW	GW	GW
TOP DEPTH (FEET)					59	71	26	26	26	31
BOTTOM DEPTH (FEET)					63	75	30	30	30	35
VOLATILES (UG/L)										
1,1,1-TRICHLOROETHANE	750 N	200	740 N	5	0.5 UJ	0.5 UJ	2.5 U	2.5 U	2.5 U	2.5 U
1,1-DICHLOROETHANE	2.4 C	NA	6.6 C	5	0.5 UJ	0.5 UJ	2.5 U	2.5 U	2.5 U	4.5 J
2-BUTANONE	490 N	NA	NA	50	2.5 UJ	2.5 UJ	12.5 U	12.5 U	12.5 U	12.5 U
ACETONE	1,200 N	NA	NA	50	2.5 UJ	2.5 UJ	12.5 U	10.125	14 J	13 J
BROMOFORM	7.9 C	80	NA	50	NA	NA	NA	NA	NA	NA
CARBON DISULFIDE	72 N	NA	120 N	50	NA	NA	NA	NA	NA	NA
CHLOROETHANE	2,100 N	NA	2,300 N	5	NA	NA	NA	NA	NA	NA
CHLOROFORM	**0.19 C**	80	**0.71 C**	50	NA	NA	NA	NA	NA	NA
CHLOROMETHANE	19 N	NA	26 N	50	NA	NA	NA	NA	NA	NA
CIS-1,2-DICHLOROETHENE	2.8 N	70	NA	5	0.5 UJ	0.5 UJ	2.5 U	2.5 U	2.5 U	2.5 U
DICHLORODIFLUOROMETHANE	19 N	NA	0.74 N	5	0.5 UJ	0.5 UJ	2.5 U	2.5 U	2.5 UJ	2.5 U
ETHYLBENZENE	1.3 C	700	3 C	5	0.5 UJ	0.5 UJ	2.5 U	2.5 U	2.5 U	2.5 U
M+P-XYLENES	19 N[5]	10,000 [5]	NA	5	1 UJ	1 UJ	5 U	5 U	5 U	5 U
METHYLENE CHLORIDE	8.4 N[6]	5	39 C	5	0.5 UJ	0.5 UJ	2.5 U	2.5 U	2.5 U	2.5 U
O-XYLENE	19 N	10,000 [5]	49 N	5	0.5 UJ	0.5 UJ	2.5 U	2.5 U	2.5 U	2.5 U
TETRACHLOROETHENE	3.5 N[6]	5	0.57 C	5	0.5 UJ	0.5 UJ	2.5 U	2.5 U	2.5 U	2.5 U
TOLUENE	86 N	1,000	NA	5	0.5 UJ	0.5 UJ	2.5 U	2.5 U	2.5 U	2.5 U
TRICHLOROETHENE	**0.26 N[6]**	**5**	**0.52 N**	**5**	0.5 UJ	0.5 UJ	2.5 U	2.5 U	2.5 U	**49** J

Shaded cells indicate that the analyte concentration is greater than minimum screening criteria.

Notes:

1 - USEPA Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites, May, 2012. [Cancer benchmark value = 1E-06, Hazard index (HI) = 0.1].
2 - 2011 Edition of the Drinking Water Standards and Health Advisories (USEPA, January 2011).
3 - USEPA Vapor Intrusion Screening Level (VISL) Calculator, Version 1.0. November 2011 RSLs. Values correspond to a target cancer risk level of 1E-6 or HI = 0.1 and an attenuation factor of 0.001.
4 - New York State Department of Health (NYSDOH) Part 5, Subpart 5-1 Public Water Systems, Table 3 Organic Chemicals Maximum Contaminant Level (MCL) Determination, March 2010.
5 - Value is for total xylenes.
6 - Ten percent of the noncarcinogenic value is less than the carcinogenic value; therefore the noncarcinogenic value is presented.

C = Carcinogenic.
GW = Groundwater
MCL = Maximum Contaminant Level.
N = Noncarcinogenic.
NA = Not available.
ug/L = Microgram per liter.
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TABLE 4-8

SUMMARY OF POSITIVE DETECTIONS IN GROUNDWATER FROM TEMPORARY WELLS
COMPARISON TO SCREENING CRITERIA
SITE 2 - FIRE TRAINING AREA
NWIRP CALVERTON
CALVERTON, NEW YORK

LOCATION	Adjusted USEPA Regional Screening Level[1] Tap Water	USEPA Maximum Contaminant Level[2]	Adjusted Groundwater Volatilization USEPA Criteria[3]	NYSDOH Maximum Contaminant Level[4]	FTGW434				FTGW435		
SAMPLE ID					FT-GW434-4145	FT-GW434-5155	FT-GW434-6165	FT-GW434-7175	FT-GW435-2125	FT-GW435-3135	FT-GW435-4145
SAMPLE DATE					20111025	20111025	20111025	20111025	20111024	20111024	20111025
SAMPLE CODE					NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
MATRIX					GW	GW	GW	GW	GW	GW	GW
TOP DEPTH (FEET)					41	51	61	71	21	31	41
BOTTOM DEPTH (FEET)					45	55	65	75	25	35	45
VOLATILES (UG/L)											
1,1,1-TRICHLOROETHANE	750 N	200	740 N	5	2.5 U	2.5 U	2.5 U	2.5 U	0.5 UJ	0.5 U	0.5 UJ
1,1-DICHLOROETHANE	2.4 C	NA	6.6 C	5	2.5 U	2.5 U	2.5 U	2.5 U	0.5 UJ	1.1	0.5 UJ
2-BUTANONE	490 N	NA	NA	50	12.5 U	12.5 U	12.5 U	12.5 U	2.5 UJ	6.2	2.5 UJ
ACETONE	1,200 N	NA	NA	50	14 J	16 J	12 J	12.5 U	2.5 UJ	4.1 J	2.5 UJ
BROMOFORM	7.9 C	80	NA	50	NA	NA	NA	NA	NA	NA	NA
CARBON DISULFIDE	72 N	NA	120 N	50	NA	NA	NA	NA	NA	NA	NA
CHLOROETHANE	2,100 N	NA	2,300 N	5	NA	NA	NA	NA	NA	NA	NA
CHLOROFORM	**0.19 C**	80	**0.71 C**	50	NA	NA	NA	NA	NA	NA	NA
CHLOROMETHANE	19 N	NA	26 N	50	NA	NA	NA	NA	NA	NA	NA
CIS-1,2-DICHLOROETHENE	2.8 N	70	NA	5	2.5 U	2.5 U	2.5 U	2.5 U	0.5 UJ	0.5 U	0.5 UJ
DICHLORODIFLUOROMETHANE	19 N	NA	0.74 N	5	2.5 UJ	2.5 UJ	2.5 UJ	2.5 U	0.5 UJ	0.5 U	0.5 UJ
ETHYLBENZENE	1.3 C	700	3 C	5	2.5 U	2.5 U	2.5 U	2.5 U	0.5 UJ	0.5 U	0.5 UJ
M+P-XYLENES	19 N[5]	10,000 [5]	NA	5	5 U	5 U	5 U	5 U	1 UJ	1 U	1 UJ
METHYLENE CHLORIDE	8.4 N[6]	5	39 C	5	2.5 U	2.5 U	2.5 U	2.5 U	0.5 UJ	0.5 U	0.5 UJ
O-XYLENE	19 N	10,000 [5]	49 N	5	2.5 U	2.5 U	2.5 U	2.5 U	0.5 UJ	0.5 U	0.5 UJ
TETRACHLOROETHENE	3.5 N[6]	5	0.57 C	5	2.5 U	2.5 U	2.5 U	2.5 U	0.5 UJ	0.5 U	0.5 UJ
TOLUENE	86 N	1,000	NA	5	2.5 U	2.5 U	2.5 U	2.5 U	0.5 UJ	0.5 U	0.5 UJ
TRICHLOROETHENE	**0.26 N[6]**	**5**	**0.52 N**	**5**	2.5 U	2.5 U	2.5 U	2.5 U	0.5 UJ	**16**	0.5 UJ

Shaded cells indicate that the analyte concentration is greater than minimum screening criteria.

Notes:

1 - USEPA Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites, May, 2012. [Cancer benchmark value = 1E-06, Hazard index (HI) = 0.1].
2 - 2011 Edition of the Drinking Water Standards and Health Advisories (USEPA, January 2011).
3 - USEPA Vapor Intrusion Screening Level (VISL) Calculator, Version 1.0. November 2011 RSLs. Values correspond to a target cancer risk level of 1E-6 or HI = 0.1 and an attenuation factor of 0.001.
4 - New York State Department of Health (NYSDOH) Part 5, Subpart 5-1 Public Water Systems, Table 3 Organic Chemicals Maximum Contaminant Level (MCL) Determination, March 2010.
5 - Value is for total xylenes.
6 - Ten percent of the noncarcinogenic value is less than the carcinogenic value; therefore the noncarcinogenic value is presented.

C = Carcinogenic.
GW = Groundwater
MCL = Maximum Contaminant Level.
N = Noncarcinogenic.
NA = Not available.
ug/L = Microgram per liter.
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SUMMARY OF POSITIVE DETECTIONS IN GROUNDWATER FROM TEMPORARY WELLS
COMPARISON TO SCREENING CRITERIA
SITE 2 - FIRE TRAINING AREA
NWIRP CALVERTON
CALVERTON, NEW YORK

LOCATION	Adjusted USEPA Regional Screening Level[1] Tap Water	USEPA Maximum Contaminant Level[2]	Adjusted Groundwater Volatilization USEPA Criteria[3]	NYSDOH Maximum Contaminant Level[4]	FTGW435					FTGW436
SAMPLE ID					FT-GW435-5155	FT-GW435-6165	FT-GW435-6165-AVG	FT-GW435-6165-D	FT-GW435-7175	FT-GW436-2630
SAMPLE DATE					20111025	20111025	20111025	20111025	20111024	20111026
SAMPLE CODE					NORMAL	ORIG	AVG	DUP	NORMAL	NORMAL
MATRIX					GW	GW	GW	GW	GW	GW
TOP DEPTH (FEET)					51	61	61	61	71	26
BOTTOM DEPTH (FEET)					55	65	65	65	78	30
VOLATILES (UG/L)										
1,1,1-TRICHLOROETHANE	750 N	200	740 N	5	0.5 UJ	0.5 U	1.5 U	2.5 U	0.5 UJ	2.5 U
1,1-DICHLOROETHANE	2.4 C	NA	6.6 C	5	0.5 UJ	0.5 U	1.5 U	2.5 U	0.5 UJ	2.5 U
2-BUTANONE	490 N	NA	NA	50	2.5 UJ	2.5 U	7.5 U	12.5 U	2.5 UJ	12.5 U
ACETONE	1,200 N	NA	NA	50	2.5 UJ	1.4 J	1.4 J	12.5 UJ	2.5 UJ	15 J
BROMOFORM	7.9 C	80	NA	50	NA	NA	NA	NA	NA	NA
CARBON DISULFIDE	72 N	NA	120 N	50	NA	NA	NA	NA	NA	NA
CHLOROETHANE	2,100 N	NA	2,300 N	5	NA	NA	NA	NA	NA	NA
CHLOROFORM	**0.19 C**	80	**0.71 C**	50	NA	NA	NA	NA	NA	NA
CHLOROMETHANE	19 N	NA	26 N	50	NA	NA	NA	NA	NA	NA
CIS-1,2-DICHLOROETHENE	2.8 N	70	NA	5	0.5 UJ	0.5 U	1.5 U	2.5 U	0.5 UJ	2.5 U
DICHLORODIFLUOROMETHANE	19 N	NA	0.74 N	5	0.5 UJ	0.5 U	1.5 U	2.5 UJ	0.5 UJ	2.5 UJ
ETHYLBENZENE	1.3 C	700	3 C	5	0.5 UJ	0.5 U	1.5 U	2.5 U	0.5 UJ	2.5 U
M+P-XYLENES	19 N[5]	10,000 [5]	NA	5	1 UJ	1 U	3 U	5 U	1 UJ	5 U
METHYLENE CHLORIDE	8.4 N[6]	5	39 C	5	0.5 UJ	0.5 U	1.5 U	2.5 U	0.5 UJ	2.5 U
O-XYLENE	19 N	10,000 [5]	49 N	5	0.5 UJ	0.5 U	1.5 U	2.5 U	0.5 UJ	2.5 U
TETRACHLOROETHENE	3.5 N[6]	5	0.57 C	5	0.5 UJ	0.5 U	1.5 U	2.5 U	0.5 UJ	2.5 U
TOLUENE	86 N	1,000	NA	5	0.5 UJ	0.5 U	1.5 U	2.5 U	0.5 UJ	2.5 U
TRICHLOROETHENE	**0.26 N[6]**	**5**	**0.52 N**	**5**	0.5 UJ	0.5 U	1.5 U	2.5 U	0.5 UJ	2.5 U

Shaded cells indicate that the analyte concentration is greater than minimum screening criteria.

Notes:

1 - USEPA Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites, May, 2012. [Cancer benchmark value = 1E-06, Hazard index (HI) = 0.1].
2 - 2011 Edition of the Drinking Water Standards and Health Advisories (USEPA, January 2011).
3 - USEPA Vapor Intrusion Screening Level (VISL) Calculator, Version 1.0. November 2011 RSLs. Values correspond to a target cancer risk level of 1E-6 or HI = 0.1 and an attenuation factor of 0.001.
4 - New York State Department of Health (NYSDOH) Part 5, Subpart 5-1 Public Water Systems, Table 3 Organic Chemicals Maximum Contaminant Level (MCL) Determination, March 2010.
5 - Value is for total xylenes.
6 - Ten percent of the noncarcinogenic value is less than the carcinogenic value; therefore the noncarcinogenic value is presented.

C = Carcinogenic.
GW = Groundwater
MCL = Maximum Contaminant Level.
N = Noncarcinogenic.
NA = Not available.
ug/L = Microgram per liter.
USEPA = United States Environmental Protection Agency.

TABLE 4-8

SUMMARY OF POSITIVE DETECTIONS IN GROUNDWATER FROM TEMPORARY WELLS
COMPARISON TO SCREENING CRITERIA
SITE 2 - FIRE TRAINING AREA
NWIRP CALVERTON
CALVERTON, NEW YORK

LOCATION	Adjusted USEPA Regional Screening Level[1] Tap Water	USEPA Maximum Contaminant Level[2]	Adjusted Groundwater Volatilization USEPA Criteria[3]	NYSDOH Maximum Contaminant Level[4]	FTGW436					FTGW437	
SAMPLE ID					FT-GW436-3135	FT-GW436-4145	FT-GW436-5155	FT-GW436-6165	FT-GW436-7175	FT-GW437-2125	FT-GW437-3135
SAMPLE DATE					20111026	20111026	20111026	20111026	20111025	20111214	20111214
SAMPLE CODE					NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
MATRIX					GW	GW	GW	GW	GW	GW	GW
TOP DEPTH (FEET)					31	41	51	61	71	21	31
BOTTOM DEPTH (FEET)					35	45	55	65	75	25	35
VOLATILES (UG/L)											
1,1,1-TRICHLOROETHANE	750 N	200	740 N	5	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	0.5 U	0.5 U
1,1-DICHLOROETHANE	2.4 C	NA	6.6 C	5	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	0.5 U	0.5 U
2-BUTANONE	490 N	NA	NA	50	12.5 U	12.5 U	12.5 U	12.5 U	12.5 U	2.5 UJ	2.5 U
ACETONE	1,200 N	NA	NA	50	12.5 UJ	12.5 UJ	12.5 UJ	12.5 UJ	12 J	2.5 UJ	2.5 UJ
BROMOFORM	7.9 C	80	NA	50	NA	NA	NA	NA	NA	0.5 U	0.5 UJ
CARBON DISULFIDE	72 N	NA	120 N	50	NA	NA	NA	NA	NA	0.5 U	0.5 UJ
CHLOROETHANE	2,100 N	NA	2,300 N	5	NA	NA	NA	NA	NA	0.5 UJ	0.5 UJ
CHLOROFORM	**0.19 C**	80	**0.71 C**	50	NA	NA	NA	NA	NA	0.5 U	0.5 U
CHLOROMETHANE	19 N	NA	26 N	50	NA	NA	NA	NA	NA	0.57 J	0.83 J
CIS-1,2-DICHLOROETHENE	2.8 N	70	NA	5	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	0.5 U	0.5 U
DICHLORODIFLUOROMETHANE	19 N	NA	0.74 N	5	2.5 UJ	2.5 UJ	2.5 UJ	2.5 UJ	2.5 UJ	0.5 U	0.5 U
ETHYLBENZENE	1.3 C	700	3 C	5	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	0.5 U	0.5 U
M+P-XYLENES	19 N[5]	10,000 [5]	NA	5	5 U	5 U	5 U	5 U	5 U	1 U	1 U
METHYLENE CHLORIDE	8.4 N[6]	5	39 C	5	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	0.5 U	0.5 U
O-XYLENE	19 N	10,000 [5]	49 N	5	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	0.5 U	0.5 U
TETRACHLOROETHENE	3.5 N[6]	5	0.57 C	5	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	0.5 U	0.5 U
TOLUENE	86 N	1,000	NA	5	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	0.5 U	0.5 U
TRICHLOROETHENE	**0.26 N[6]**	**5**	**0.52 N**	**5**	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	1.3	0.5 U

Shaded cells indicate that the analyte concentration is greater than minimum screening criteria.

Notes:

1 - USEPA Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites, May, 2012. [Cancer benchmark value = 1E-06, Hazard index (HI) = 0.1].
2 - 2011 Edition of the Drinking Water Standards and Health Advisories (USEPA, January 2011).
3 - USEPA Vapor Intrusion Screening Level (VISL) Calculator, Version 1.0. November 2011 RSLs. Values correspond to a target cancer risk level of 1E-6 or HI = 0.1 and an attenuation factor of 0.001.
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SUMMARY OF POSITIVE DETECTIONS IN GROUNDWATER FROM TEMPORARY WELLS
COMPARISON TO SCREENING CRITERIA
SITE 2 - FIRE TRAINING AREA
NWIRP CALVERTON
CALVERTON, NEW YORK

LOCATION	Adjusted USEPA Regional Screening Level[1] Tap Water	USEPA Maximum Contaminant Level[2]	Adjusted Groundwater Volatilization USEPA Criteria[3]	NYSDOH Maximum Contaminant Level[4]	FTGW437				FTGW438	
SAMPLE ID					FT-GW437-4145	FT-GW437-4145-AVG	FT-GW437-4145-D	FT-GW437-5155	FT-GW438-2125	FT-GW438-3135
SAMPLE DATE					20111214	20111214	20111214	20111214	20111213	20111213
SAMPLE CODE					ORIGINAL	AVERAGE	DUPLICATE	NORMAL	NORMAL	NORMAL
MATRIX					GW	GW	GW	GW	GW	GW
TOP DEPTH (FEET)					41	41	41	51	21	31
BOTTOM DEPTH (FEET)					45	45	45	55	25	35
VOLATILES (UG/L)										
1,1,1-TRICHLOROETHANE	750 N	200	740 N	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1-DICHLOROETHANE	2.4 C	NA	6.6 C	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
2-BUTANONE	490 N	NA	NA	50	2.5 UJ	2.5 U	2.5 U	2.5 U	2.5 UJ	2.5 UJ
ACETONE	1,200 N	NA	NA	50	2.5 UJ	2.5 U	2.5 UJ	2.5 UJ	2.5 UJ	2.5 UJ
BROMOFORM	7.9 C	80	NA	50	0.5 U	0.5 U	0.5 UJ	0.5 UJ	0.5 U	0.5 U
CARBON DISULFIDE	72 N	NA	120 N	50	0.5 U	0.5 U	0.5 UJ	0.5 UJ	0.5 U	0.5 U
CHLOROETHANE	2,100 N	NA	2,300 N	5	0.5 UJ	0.5 U	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ
CHLOROFORM	**0.19 C**	80	**0.71 C**	50	0.5 U	0.47	0.69 J	0.66 J	0.5 U	0.5 U
CHLOROMETHANE	19 N	NA	26 N	50	0.47 J	0.7	0.93 J	0.5 U	0.67 J	0.8 J
CIS-1,2-DICHLOROETHENE	2.8 N	70	NA	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
DICHLORODIFLUOROMETHANE	19 N	NA	0.74 N	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
ETHYLBENZENE	1.3 C	700	3 C	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
M+P-XYLENES	19 N[5]	10,000 [5]	NA	5	1 U	1 U	1 U	1 U	1 U	1 U
METHYLENE CHLORIDE	8.4 N[6]	5	39 C	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
O-XYLENE	19 N	10,000 [5]	49 N	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
TETRACHLOROETHENE	3.5 N[6]	5	0.57 C	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
TOLUENE	86 N	1,000	NA	5	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
TRICHLOROETHENE	**0.26 N[6]**	**5**	**0.52 N**	**5**	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U

Shaded cells indicate that the analyte concentration is greater than minimum screening criteria.

Notes:

1 - USEPA Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites, May, 2012. [Cancer benchmark value = 1E-06, Hazard index (HI) = 0.1].
2 - 2011 Edition of the Drinking Water Standards and Health Advisories (USEPA, January 2011).
3 - USEPA Vapor Intrusion Screening Level (VISL) Calculator, Version 1.0. November 2011 RSLs. Values correspond to a target cancer risk level of 1E-6 or HI = 0.1 and an attenuation factor of 0.001.
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C = Carcinogenic.
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MCL = Maximum Contaminant Level.
N = Noncarcinogenic.
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SUMMARY OF POSITIVE DETECTIONS IN GROUNDWATER FROM TEMPORARY WELLS
COMPARISON TO SCREENING CRITERIA
SITE 2 - FIRE TRAINING AREA
NWIRP CALVERTON
CALVERTON, NEW YORK

LOCATION	Adjusted USEPA Regional Screening Level[1] Tap Water	USEPA Maximum Contaminant Level[2]	Adjusted Groundwater Volatilization USEPA Criteria[3]	NYSDOH Maximum Contaminant Level[4]	FTGW438		FTGW439			
SAMPLE ID					FT-GW438-4145	FT-GW438-5155	FT-GW439-2125	FT-GW439-3135	FT-GW439-3135-AVG	FT-GW439-3135-D
SAMPLE DATE					20111213	20111213	20111213	20111213	20111213	20111213
SAMPLE CODE					NORMAL	NORMAL	NORMAL	ORIGINAL	AVERAGE	DUPLICATE
MATRIX					GW	GW	GW	GW	GW	GW
TOP DEPTH (FEET)					41	51	21	31	31	31
BOTTOM DEPTH (FEET)					45	55	25	35	35	35
VOLATILES (UG/L)										
1,1,1-TRICHLOROETHANE	750 N	200	740 N	5	0.5 U	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 U
1,1-DICHLOROETHANE	2.4 C	NA	6.6 C	5	0.5 U	0.5 UJ	0.5 U	1.3	0.775	0.5 U
2-BUTANONE	490 N	NA	NA	50	2.5 UJ	2.5 UJ	2.5 UJ	2.5 UJ	2.5 U	2.5 U
ACETONE	1,200 N	NA	NA	50	2.5 UJ	2.5 UJ	2.5 UJ	1.3 J	1.3 J	2.5 UJ
BROMOFORM	7.9 C	80	NA	50	0.5 U	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 UJ
CARBON DISULFIDE	72 N	NA	120 N	50	0.5 U	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 UJ
CHLOROETHANE	2,100 N	NA	2,300 N	5	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 U	0.5 UJ
CHLOROFORM	**0.19 C**	80	**0.71 C**	50	0.5 U	0.87 J	0.5 U	0.5 U	0.5 U	0.5 U
CHLOROMETHANE	19 N	NA	26 N	50	1.4	0.48 J	0.62 J	0.5 U	0.5 U	0.5 U
CIS-1,2-DICHLOROETHENE	2.8 N	70	NA	5	0.5 U	0.5 UJ	0.5 U	0.71 J	0.67	0.63 J
DICHLORODIFLUOROMETHANE	19 N	NA	0.74 N	5	0.5 U	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 U
ETHYLBENZENE	1.3 C	700	3 C	5	0.5 U	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 U
M+P-XYLENES	19 N[5]	10,000 [5]	NA	5	1 U	1 UJ	1 U	1 U	1 U	1 U
METHYLENE CHLORIDE	8.4 N[6]	5	39 C	5	0.5 U	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 U
O-XYLENE	19 N	10,000 [5]	49 N	5	0.5 U	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 U
TETRACHLOROETHENE	3.5 N[6]	5	0.57 C	5	0.5 U	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 U
TOLUENE	86 N	1,000	NA	5	0.5 U	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 U
TRICHLOROETHENE	**0.26 N[6]**	**5**	**0.52 N**	**5**	0.5 U	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 U

Shaded cells indicate that the analyte concentration is greater than minimum screening criteria.

Notes:

1 - USEPA Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites, May, 2012. [Cancer benchmark value = 1E-06, Hazard index (HI) = 0.1].
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5 - Value is for total xylenes.
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C = Carcinogenic.
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COMPARISON TO SCREENING CRITERIA
SITE 2 - FIRE TRAINING AREA
NWIRP CALVERTON
CALVERTON, NEW YORK

LOCATION	Adjusted USEPA Regional Screening Level[1] Tap Water	USEPA Maximum Contaminant Level[2]	Adjusted Groundwater Volatilization USEPA Criteria[3]	NYSDOH Maximum Contaminant Level[4]	FTGW439		FTGW440			
SAMPLE ID					FT-GW439-4145	FT-GW439-5155	FT-GW440-2125	FT-GW440-3135	FT-GW440-4145	FT-GW440-5155
SAMPLE DATE					20111213	20111213	20111214	20111214	20111214	20111214
SAMPLE CODE					NORMAL	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
MATRIX					GW	GW	GW	GW	GW	GW
TOP DEPTH (FEET)					41	51	21	31	41	51
BOTTOM DEPTH (FEET)					45	55	25	35	45	55
VOLATILES (UG/L)										
1,1,1-TRICHLOROETHANE	750 N	200	740 N	5	0.5 U	0.5 UJ	0.5 UJ	0.5 U	0.5 UJ	0.5 U
1,1-DICHLOROETHANE	2.4 C	NA	6.6 C	5	0.63 J	0.5 UJ	0.5 UJ	0.5 U	0.5 UJ	0.5 U
2-BUTANONE	490 N	NA	NA	50	2.5 UJ	2.5 UJ	2.5 UJ	2.5 U	2.5 UJ	2.5 U
ACETONE	1,200 N	NA	NA	50	2.5 UJ	2.5 UJ	2.5 UJ	1.2 J	2.5 UJ	2.5 UJ
BROMOFORM	7.9 C	80	NA	50	0.5 U	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ
CARBON DISULFIDE	72 N	NA	120 N	50	0.73 J	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ
CHLOROETHANE	2,100 N	NA	2,300 N	5	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ
CHLOROFORM	**0.19 C**	80	**0.71 C**	50	0.5 U	0.5 UJ	0.5 UJ	0.77 J	0.78 J	0.76 J
CHLOROMETHANE	19 N	NA	26 N	50	1.3	0.5 UJ	0.5 UJ	0.5 U	0.5 UJ	0.5 U
CIS-1,2-DICHLOROETHENE	2.8 N	70	NA	5	0.5 U	0.5 UJ	0.5 UJ	0.5 U	0.5 UJ	0.5 U
DICHLORODIFLUOROMETHANE	19 N	NA	0.74 N	5	0.5 U	0.5 UJ	0.5 UJ	0.5 U	0.5 UJ	0.5 U
ETHYLBENZENE	1.3 C	700	3 C	5	0.5 U	0.5 UJ	0.5 UJ	0.5 U	0.5 UJ	0.5 U
M+P-XYLENES	19 N[5]	10,000 [5]	NA	5	1 U	1 UJ	1 UJ	1 U	1 UJ	1 U
METHYLENE CHLORIDE	8.4 N[6]	5	39 C	5	0.5 U	0.5 UJ	0.5 UJ	0.5 U	0.5 UJ	0.5 U
O-XYLENE	19 N	10,000 [5]	49 N	5	0.5 U	0.5 UJ	0.5 UJ	0.5 U	0.5 UJ	0.5 U
TETRACHLOROETHENE	3.5 N[6]	5	0.57 C	5	0.5 U	0.5 UJ	0.5 UJ	0.5 U	0.5 UJ	0.5 U
TOLUENE	86 N	1,000	NA	5	0.5 U	0.5 UJ	0.5 UJ	0.5 U	0.5 UJ	0.41 J
TRICHLOROETHENE	**0.26 N[6]**	**5**	**0.52 N**	**5**	0.5 U	0.5 UJ	0.5 UJ	0.5 U	0.5 UJ	0.5 U

Shaded cells indicate that the analyte concentration is greater than minimum screening criteria.

Notes:

1 - USEPA Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites, May, 2012. [Cancer benchmark value = 1E-06, Hazard index (HI) = 0.1].
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C = Carcinogenic.
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N = Noncarcinogenic.
NA = Not available.
ug/L = Microgram per liter.
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TABLE 5-1

ENVIRONMENTAL FATE AND TRANSPORT PARAMETERS FOR ORGANIC CHEMICALS
SITE 2 - FIRE TRAINING AREA
NWIRP CALVERTON
CALVERTON, NEW YORK

Chemical	Specific Gravity (@ 20/4°C)	Vapor Pressure (mm Hg)	Water Solubility (mg/L)	Octanol-Water Partition Coefficient (dimensionless)	Organic Carbon Partition Coefficient (L/kg)	Henry's Law Constant (atm-m^3/mole)	Fish Bioconcentration Factor (L/kg)	Mobility Index log((solubility*VP)/K_{oc})
MONOCYCLIC AROMATICS								
1,4-Dichlorobenzene	1.25	1.74E+00	8.13E+01	2.75E+03	3.75E+02	2.41E-03	4.20E+02	-0.4
Ethylbenzene	0.863	9.60E+00	1.69E+02	1.41E+03	4.46E+02	7.88E-03	5.56E+01	0.6
m+p-Xylenes(1)	-	7.99E+00	1.06E+02	1.32E+03	3.83E+02	5.19E-03	1.41E+01	0.3
o-Xylene	0.876	7.99E+00	1.78E+02	1.32E+03	3.83E+02	5.19E-03	1.41E+01	0.6
HALOGENATED ALIPHATICS								
Chloroform	1.48	1.97E+02	7.95E+03	9.33E+01	3.18E+01	3.67E-03	1.30E+01	4.7
cis-1,2-Dichloroethene	1.28	2.01E+02	6.41E+03	7.24E+01	3.96E+01	4.09E-03	1.11E+01	4.5
1,1-Dichloroethane	1.18	2.27E+02	5.04E+03	6.17E+01	3.18E+01	5.63E-03	7.05E+00	4.6
Dichlorodifluoromethane	1.49	4.85E+03	2.80E+02	1.45E+02	4.39E+01	3.42E-01	6.15E+00	4.5
Methylene chloride	1.33	4.35E+02	1.30E+04	1.78E+01	2.17E+01	3.25E-03	2.31E+01	5.4
Tetrachloroethene	1.62	1.85E+01	2.06E+02	2.51E+03	9.49E+01	1.77E-02	5.20E+01	1.6
Vinyl chloride	0.911	2.98E+03	8.80E+03	4.17E+01	2.17E+01	2.79E-02	5.47E+00	6.1
Trichloroethene	1.46	6.90E+01	1.28E+03	2.63E+02	6.07E+01	9.86E-03	1.60E+01	3.2
POLYNUCLEAR AROMATIC HYDROCARBONS (PAHs)								
Benzo(a)anthracene	-	2.10E-07	9.40E-03	5.75E+05	1.77E+05	1.20E-05	2.60E+02	-14.0
Benzo(a)pyrene	-	5.49E-09	1.62E-03	1.35E+06	5.87E+05	4.57E-07	5.15E+03	-16.8
Benzo(b)fluoranthene	-	5.00E-07	1.50E-03	6.03E+05	5.99E+05	6.58E-07	3.02E+03	-14.9
Dibenzo(a,h)anthracene	-	9.55E-10	2.49E-03	5.62E+06	1.91E+06	1.41E-07	9.60E+03	-17.9
Indeno(1,2,3-cd)pyrene	-	1.25E-10	1.90E-04	-	1.95E+06	3.47E-07	1.22E+04	-19.9
Naphthalene	1.03	8.50E-02	3.10E+01	2.00E+03	1.54E+03	4.40E-04	8.45E+01	-2.8

Notes:

Data obtained from the Risk Assessment Information System, Chemical Specific Parameters available at http://rais.ornl.gov/. Accessed May 23, 2012.

1 - Values for xylenes.

atm-m^3/mole = atmosopheres times cubic meters per mole
°C = Degree Celsius
Koc = Octanol-Water Partition Coefficient
L/kg = Liter per kilogram
mg/L = milligram per Liter
mm Hg = millimeters of Mercury
VP = Vapor Pressure

TABLE 5-2

PHYSICAL AND CHEMICAL PROPERTIES OF INORGANIC SITE CONTAMINANTS
SITE 2 - FIRE TRAINING AREA
NWIRP CALVERTON
CALVERTON, NEW YORK

Chemical	Molecular Weight (g/mol)	Specific Gravity (20/4 °C)	Vapor Pressure (mm Hg)	Solubility (mg/L)	Henry's Law Constant (atm-m^3/mol)	Soil-Water K_d (L/kg)	Bioconcentration Factor (L/kg)
Cobalt	58.9	8.86	NA	NA	NA	45	300
Selenium	79	4.81	NA	NA	NA	5	200
Hexavalent Chromium	52	NA	NA	NA	NA	19	200

Notes:
Data obtained from the Risk Assessment Information System, Chemical Specific Parameters available at http://rais.ornl.gov/. Accessed May 23, 2012.
atm-m^3/mole = atmosopheres times cubic meters per mole
°C = Degree Celsius
g/mol = grams per mol
K_d - Soil-water distribution coefficient.
Koc = Octanol-Water Partition Coefficient
L/kg = Liter per kilogram
mg/L = milligram per Liter
mm Hg = millimeters of Mercury
NA = Not available

TABLE 6-1

SCREENING CRITERIA USED IN SELECTION OF COPCS - SOIL
SITE 2 - FIRE TRAINING AREA
NWIRP CALVERTON
CALVERTON, NEW YORK

CAS No.	Chemical	USEPA Regional Screening Levels[1]		NYSDEC Soil Cleanup Objectives[2]	
		Adjusted Direct Contact Residential	Protection of Groundwater	Residential	Migration to Groundwater
Volatile Organic Compounds (ug/kg)					
--	m+p-Xylenes	59,000 N[3]	180 [3]	100,000 [4]	1,600 [4]
75-09-2	Methylene Chloride	36,000 N[5]	2.5	51,000	50
95-47-6	o-Xylene	69,000 N	190	100,000 [4]	1,600 [4]
Polynuclear Aromatic Hydrocarbons (ug/kg)					
83-32-9	Acenaphthene	340,000 N	4,100	100,000	98,000
208-96-8	Acenaphthylene	340,000 N[6]	4,100 [6]	100,000	107,000
120-12-7	Anthracene	1,700,000 N	42,000	100,000	1,000,000
56-55-3	Benzo(a)anthracene	150 C	10	1,000	1,000
50-32-8	Benzo(a)pyrene	15 C	3.5	1,000	22,000
205-99-2	Benzo(b)fluoranthene	150 C	35	1,000	1,700
191-24-2	Benzo(g,h,i)perylene	170,000 N[7]	9,500 [7]	100,000	1,000,000
207-08-9	Benzo(k)fluoranthene	1,500 C	350	1,000	1,700
218-01-9	Chrysene	15,000 C	1,100	1,000	1,000
53-70-3	Dibenzo(a,h)anthracene	15 C	11	330	1,000,000
206-44-0	Fluoranthene	230,000 N	70,000	100,000	1,000,000
86-73-7	Fluorene	230,000 N	4,000	100,000	386,000
193-39-5	Indeno(1,2,3-cd)pyrene	150 C	120	500	8,200
91-20-3	Naphthalene	3,600 C	0.47	100,000	12,000
85-01-8	Phenanthrene	170,000 N[7]	9,500 [7]	100,000	1,000,000
129-00-0	Pyrene	170,000 N	9,500	100,000	1,000,000
PCBs (ug/kg)					
11096-82-5	Aroclor-1248	220 C	24	1,000 [8]	3,200 [8]
12672-29-6	Aroclor-1260	220 C	5.2	1,000 [8]	3,200 [8]
Metals (mg/kg)					
7429-90-5	Aluminum	7,700 N	23,000	NA	NA
7440-38-2	Arsenic	0.39 C	0.0013	16	16
7440-39-3	Barium	1,500 N	120	350	820
7440-41-7	Beryllium	16 N	13	14	47
7440-43-9	Cadmium	7 N	0.52	2.5	7.5
7440-70-2	Calcium	NA	NA	NA	NA
7440-47-3	Chromium	NA	NA	NA	NA
7440-48-4	Cobalt	2.3 N	0.21	NA	NA
7439-89-6	Iron	5,500 N	270	NA	NA
7439-92-1	Lead	400	14 [9]	400	450
7439-95-4	Magnesium	NA	NA	NA	NA
7439-96-5	Manganese	180 N	21	2,000	2,000
7439-97-6	Mercury	2.3 N[10]	0.033	0.81 [11]	0.73 [11]
7440-02-0	Nickel	150 N	20	140	130
7440-09-7	Potassium	NA	NA	NA	NA
7782-49-2	Selenium	39 N	0.4	36	4
7440-62-2	Vanadium	39 N	78	NA	NA
7440-66-6	Zinc	2,300 N	290	2,200	2,480
Miscellaneous Parameters (mg/kg)					
16065-83-1	Chromium III	12,000 N	28,000,000	36	NA
57-12-5	Cyanide	4.7 N	0.094	27	40
18540-29-9	Hexavalent Chromium	0.29 C	0.00059	22	19

TABLE 6-1

SCREENING CRITERIA USED IN SELECTION OF COPCS - SOIL
SITE 2 - FIRE TRAINING AREA
NWIRP CALVERTON
CALVERTON, NEW YORK

Notes:

1 - USEPA Regional Screening Level (RSL), May 2012. Carcinogenic values represent an incremental cancer risk of 1 X 10-6. The noncarcinogenic values are the RSL divided by 10 to correspond to a Target Hazard Quotient of 0.1. Protection of groundwater values are risk-based soil screening levels (SSLs) and represent a dilution attenuation factor of 1.
2 - New York State Department of Environmental Conservation (NYSDEC) Remedial Program Soil Cleanup Objectives. Table 375-6.8(b). December 2006.
3 - Value is for m-xylene.
4 - Value is for mixed xylenes.
5 - Ten percent of the noncarcinogenic value is less than the carcinogenic value; therefore the noncarcinogenic value is presented.
6 - Value is for acenaphthene.
7 - Value is for pyrene.
8 - Value is for PCBs.
9 - Value is MCL based soil screening level.
10 - Value is for mercuric chloride (and other mercury salts).
11 - Value is for total mercury.

C - Carcinogenic
CAS No. = Chemical Abstract Service Number
MCL - Maximum contaminant level
mg/kg = Milligram per kilogram
N - Noncarcinogenic
ug/kg = Microgram per kilogram
USEPA = United States Environmental Protection Agency

TABLE 6-2

SCREENING CRITERIA USED IN SELECTION OF COPCS - GROUNDWATER
SITE 2 - FIRE TRAINING AREA
NWIRP CALVERTON
CALVERTON, NEW YORK

Cas No.	Chemical	Adjusted USEPA Regional Screening Level[1] Tap Water	USEPA Maximum Contaminant Level[2]	Adjusted USEPA Groundwater Volatilization Criteria[3]	NYSDOH Maximum Contaminant Level[4]	NYSDEC Surface Water Quality Standards[5]	National Recommended Water Quality Criteria[6]	
							Human Health Consumption of Water + Organism	Human Health Consumption of Organism Only
Volatile Organic Compounds (ug/L)								
75-34-3	1,1-Dichloroethane	2.4 C	NA	6.6 C	5	NA	NA	NA
95-50-1	1,2-Dichlorobenzene	28 N	600	NVT	5	5 [7,8]	420	1,300
106-46-7	1,4-Dichlorobenzene	0.42 C	75	2.2 C	5	5 [7,8]	63	190
78-93-3	2-Butanone	490 N	NA	NVT	50	NA	NA	NA
67-64-1	Acetone	1,200 N	NA	NVT	50	NA	NA	NA
67-66-3	Chloroform	0.19 C	80	0.71 C	50	NA	5.7	470
156-59-2	cis-1,2-Dichloroethene	2.8 N	70	NVT	5	NA	NA	NA
100-41-4	Ethylbenzene	1.3 C	700	3 C	5	NA	530	2,100
98-82-8	Isopropylbenzene	39 N	NA	NVT	50	NA	NA	NA
--	m+p-Xylenes	19 N[5]	10,000 [9]	36 N[10]	5	NA	NA	NA
95-47-6	o-Xylene	19 N	10,000 [9]	49 N	5	NA	NA	NA
127-18-4	Tetrachloroethene	3.5 N[6]	5	0.57 C	5	NA	0.69	3.3
108-88-3	Toluene	86 N	1,000	NVT	5	6,000 [11]	1,300	15,000
79-01-6	Trichloroethene	0.26 N[12]	5	0.52 N	5	40 [11]	2.5	30
75-01-4	Vinyl Chloride	0.015 C	2	0.14 C	2	NA	0.025	2.4
Volatile Gases (ug/L)								
74-82-8	Methane	NA	NA	NA	NA	NA	NA	NA

Notes:

1 - USEPA Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites, May, 2012. [Cancer benchmark value = 1E-06, Hazard index (HI) = 0.1].

2 - 2011 Edition of the Drinking Water Standards and Health Advisories (USEPA, January 2011).

3 - USEPA Vapor Intrusion Screening Level (VISL) Calculator, Version 1.0. November 2011 RSLs. Values correspond to a target cancer risk level of 1E-6 or HI = 0.1 and an attenuation factor of 0.001.

4 - New York State Department of Health (NYSDOH) Part 5, Subpart 5-1 Public Water Systems, Table 3 Organic Chemicals Maximum Contaminant Level (MCL) Determination, March 2010.

5 - New York State Department of Environmental Conservation (NYSDEC) Part 703.5, Surface Water and Groundwater Quality Standards and Groundwater Effluent Limitations. Values presented are for Class C surface waters.

TABLE 6-2

SCREENING CRITERIA USED IN SELECTION OF COPCS - GROUNDWATER
SITE 2 - FIRE TRAINING AREA
NWIRP CALVERTON
CALVERTON, NEW YORK

Notes Continued:
6 - USEPA National Recommended Water Quality Criteria, 2009.
7 - Value is for sum of dichlorobenzenes.
8 - Based on Aquatic (Chronic).
9 - Value is for m-xylene.
10 - Value is for total xylenes.
11 - Based on Health (Fish Consumption).
12 - Ten percent of the noncarcinogenic value is less than the carcinogenic value; therefore the noncarcinogenic value is presented.

C = Carcinogenic
CAS No. = Chemical Abstract Service Number
COPCs = Contaminants of Potential Concern
MCL = Maximum Contaminant Level
N = Noncarcinogenic
NA = Not available
NVT = Not sufficiently volatile and/or toxic to pose inhalation risk
ug/L = Microgram per liter
USEPA = United States Environmental Protection Agency

TABLE 6-3

OCCURRENCE, DISTRIBUTION, AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN
DIRECT CONTACT WITH SURFACE SOIL
SITE 2 - FIRE TRAINING AREA
NWIRP CALVERTON
CALVERTON, NEW YORK

CAS No.	Chemical	Minimum Concentration[1]	Maximum Concentration[1]	Units	Sample of Maximum Concentration	Frequency of Detection	Range of Nondetects[2]	Concentration Used for Screening[3]	Background Concentration[4]	Adjusted USEPA RSL Residential Soil[5]	NYSDEC Soil Cleanup Objectives[6] Residential	COPC Flag	Rationale for Contaminant Deletion or Selection[7]
Polycyclic Aromatic Hydrocarbons													
83-32-9	Acenaphthene	37 J	37 J	ug/kg	FT-SB-411-0002	1/2	1.8 - 1.8	37	NA	340,000 N	100,000	No	BSL
208-96-8	Acenaphthylene	3.1 J	3.1 J	ug/kg	FT-SB-411-0002	1/2	1.8 - 1.8	3.1	NA	340,000 N[8]	100,000	No	BSL
120-12-7	Anthracene	2.9 J	79	ug/kg	FT-SB-411-0002	2/2	-	79	NA	1,700,000 N	100,000	No	BSL
56-55-3	**Benzo(a)anthracene**	460 J	460 J	ug/kg	FT-SB-411-0002	1/2	1.8 - 1.8	460	NA	**150 C**	1,000	**Yes**	ASL
50-32-8	**Benzo(a)pyrene**	13	420	ug/kg	FT-SB-411-0002	2/2	-	420	NA	**15 C**	1,000	**Yes**	ASL
205-99-2	**Benzo(b)fluoranthene**	18	580	ug/kg	FT-SB-411-0002	2/2	-	580	NA	**150 C**	1,000	**Yes**	ASL
191-24-2	Benzo(g,h,i)perylene	10	290	ug/kg	FT-SB-411-0002	2/2	-	290	NA	170,000 N[9]	100,000	No	BSL
207-08-9	Benzo(k)fluoranthene	6.5	190	ug/kg	FT-SB-411-0002	2/2	-	190	NA	1,500 C	1,000	No	BSL
218-01-9	Chrysene	13	460	ug/kg	FT-SB-411-0002	2/2	-	460	NA	15,000 C	1,000	No	BSL
53-70-3	**Dibenzo(a,h)anthracene**	2.9 J	79	ug/kg	FT-SB-411-0002	2/2	-	79	NA	**15 C**	330	**Yes**	ASL
206-44-0	Fluoranthene	18	1000	ug/kg	FT-SB-411-0002	2/2	-	1,000	NA	230,000 N	100,000	No	BSL
86-73-7	Fluorene	19 J	19 J	ug/kg	FT-SB-411-0002	1/2	1.8 - 1.8	19	NA	230,000 N	100,000	No	BSL
193-39-5	**Indeno(1,2,3-cd)pyrene**	8.7	260	ug/kg	FT-SB-411-0002	2/2	-	260	NA	**150 C**	500	**Yes**	ASL
91-20-3	Naphthalene	5.8	11	ug/kg	FT-SB-411-0002	2/2	-	11	NA	3,600 C	100,000	No	BSL
85-01-8	Phenanthrene	12	550	ug/kg	FT-SB-411-0002	2/2	-	550	NA	170,000 N[9]	100,000	No	BSL
129-00-0	Pyrene	21	840	ug/kg	FT-SB-411-0002	2/2	-	840	NA	170,000 N	100,000	No	BSL
PCBs													
11096-82-5	Aroclor-1248	22	22	ug/kg	FT-SB-413-0002	1/2	8.5 - 8.5	22	NA	220 C	1,000 [10]	No	BSL
12672-29-6	Aroclor-1260	46	46	ug/kg	FT-SB-411-0002	1/2	9 - 9	46	NA	220 C	1,000 [10]	No	BSL
Metals													
7429-90-5	Aluminum	3810	3810	mg/kg	FT-SB-413-0002	1/1	-	3,810	18,500	7,700 N	NA	No	BSL, BKG
7440-38-2	**Arsenic**	0.826 J	0.826 J	mg/kg	FT-SB-413-0002	1/1	-	0.826	14.5	**0.39 C**	16	No	BKG
7440-39-3	Barium	7.63	7.63	mg/kg	FT-SB-413-0002	1/1	-	7.63	23.3	1,500 N	350	No	BSL, BKG
7440-41-7	Beryllium	0.085 J	0.085 J	mg/kg	FT-SB-413-0002	1/1	-	0.085	NA	16 N	14	No	BSL
7440-43-9	Cadmium	0.147 J	0.147 J	mg/kg	FT-SB-413-0002	1/1	-	0.147	2.8	7 N	2.5	No	BSL, BKG
7440-70-2	**Calcium**	841	841	mg/kg	FT-SB-413-0002	1/1	-	841	**236**	NA	NA	No	NUT
7440-47-3	Chromium	3.49	3.49	mg/kg	FT-SB-413-0002	1/1	-	3.49	64.2	NA	NA	No	BKG
7440-48-4	Cobalt	0.642 J	0.642 J	mg/kg	FT-SB-413-0002	1/1	-	0.642	NA	2.3 N	NA	No	BSL
7439-89-6	Iron	3110	3110	mg/kg	FT-SB-413-0002	1/1	-	3,110	17,100	5,500 N	NA	No	BSL, BKG
7439-92-1	Lead	3.99	3.99	mg/kg	FT-SB-413-0002	1/1	-	3.99	37.5	400	400	No	BSL, BKG
7439-95-4	Magnesium	125	125	mg/kg	FT-SB-413-0002	1/1	-	125	1,702	NA	NA	No	NUT, BKG
7439-96-5	Manganese	17.2	17.2	mg/kg	FT-SB-413-0002	1/1	-	17.2	99.2	180 N	2,000	No	BSL, BKG
7439-97-6	Mercury	0.021 J	0.021 J	mg/kg	FT-SB-413-0002	1/1	-	0.021	NA	2.3 N[11]	0.81 [12]	No	BSL
7440-02-0	Nickel	1.74 J	1.74 J	mg/kg	FT-SB-413-0002	1/1	-	1.74	6.2	150 N	140	No	BSL, BKG
7440-62-2	Vanadium	5.6	5.6	mg/kg	FT-SB-413-0002	1/1	-	5.6	51.3	39 N	NA	No	BSL, BKG
7440-66-6	Zinc	10.9	10.9	mg/kg	FT-SB-413-0002	1/1	-	10.9	NA	2,300 N	2,200	No	BSL
Miscellaneous Parameters													
16065-83-1	Chromium III	3.49	3.49	mg/kg	FT-SB-413-0002	1/1	-	3.49	NA	12,000 N	36	No	BSL
57-12-5	Cyanide	0.038 J	0.038 J	mg/kg	FT-SB-413-0002	1/1	-	0.038	NA	4.7 N	27	No	BSL

TABLE 6-3

OCCURRENCE, DISTRIBUTION, AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN
DIRECT CONTACT WITH SURFACE SOIL
SITE 2 - FIRE TRAINING AREA
NWIRP CALVERTON
CALVERTON, NEW YORK

Notes:
1 - Sample and duplicate are considered as two separate samples when determining the minimum and maximum concentrations.
2 - Values presented are sample-specific quantitation limits.
3 - The maximum detected concentration is used for screening purposes.
4 - Background concentration is the upper prediction limit, see Appendix G.
5 - USEPA Regional Screening Levels for Chemical Contaminants at Superfund Sites, May 2012. The noncarcinogenic values (denoted with a "N" flag) are the screening level divided by 10 to correspond to a target hazard quotient of 0.1. Carcinogenic values represent an incremental cancer risk of 1.0E-06 (carcinogens denoted with a "C" flag).
6 - New York State Department of Environmental Conservation (NYSDEC) Remedial Program Soil Cleanup Objectives. Table 375-6.8(b). December 2006.
7 - The chemical is selected as a COPC if the maximum detected concentration exceeds the risk-based COPC screening level and is statistically determined to be greater than site background.
8 - Value is for acenaphthene.
9 - Value is for pyrene.
10 - Value is for PCBs.
11 - Value is for mercuric chloride (and other mercury salts).
12 - Value is for total mercury.
Shaded criterion indicates that the maximum detected concentration exceeds one or more screening criteria. Shaded chemical name indicates that the chemical was retained as a COPC.

Associated Samples
FT-SB-411-0002
FT-SB-413-0002

Definitions:
C = Carcinogen
CAS No. = Chemical Abstract Service Number
COPC = Chemical Of Potential Concern
J = Estimated value
N = Noncarcinogen
NA = Not Applicable/Not Available

Rationale Codes:
For selection as a COPC:
ASL = Above Screening Level and site background.

For elimination as a COPC:
BKG = Less than Background Concentration
BSL = Below COPC Screening Level
NUT = Essential nutrient

TABLE 6-4

OCCURRENCE, DISTRIBUTION, AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN
MIGRATION FROM SURFACE SOIL TO GROUNDWATER
SITE 2 - FIRE TRAINING AREA
NWIRP CALVERTON
CALVERTON, NEW YORK

CAS No.	Chemical	Minimum Concentration[1]	Maximum Concentration[1]	Units	Sample of Maximum Concentration	Frequency of Detection	Range of Nondetects[2]	Concentration Used for Screening[3]	Background Concentration[4]	USEPA RSL Protection of Groundwater[5]	NYSDEC Soil Cleanup Objectives[6]	COPC Flag	Rationale for Contaminant Deletion or Selection[7]
Polycyclic Aromatic Hydrocarbons													
83-32-9	Acenaphthene	37 J	37 J	ug/kg	FT-SB-411-0002	1/2	1.8 - 1.8	37	NA	4,100	98,000	No	BSL
208-96-8	Acenaphthylene	3.1 J	3.1 J	ug/kg	FT-SB-411-0002	1/2	1.8 - 1.8	3.1	NA	4,100 [8]	107,000	No	BSL
120-12-7	Anthracene	2.9 J	79	ug/kg	FT-SB-411-0002	2/2	-	79	NA	42,000	1,000,000	No	BSL
56-55-3	**Benzo(a)anthracene**	460 J	460 J	ug/kg	FT-SB-411-0002	1/2	1.8 - 1.8	460	NA	**10**	1,000	**Yes**	ASL
50-32-8	**Benzo(a)pyrene**	13	420	ug/kg	FT-SB-411-0002	2/2	-	420	NA	**3.5**	22,000	**Yes**	ASL
205-99-2	**Benzo(b)fluoranthene**	18	580	ug/kg	FT-SB-411-0002	2/2	-	580	NA	**35**	1,700	**Yes**	ASL
191-24-2	Benzo(g,h,i)perylene	10	290	ug/kg	FT-SB-411-0002	2/2	-	290	NA	9,500 [9]	1,000,000	No	BSL
207-08-9	Benzo(k)fluoranthene	6.5	190	ug/kg	FT-SB-411-0002	2/2	-	190	NA	350	1,700	No	BSL
218-01-9	Chrysene	13	460	ug/kg	FT-SB-411-0002	2/2	-	460	NA	1,100	1,000	No	BSL
53-70-3	**Dibenzo(a,h)anthracene**	2.9 J	79	ug/kg	FT-SB-411-0002	2/2	-	79	NA	**11**	1,000,000	**Yes**	ASL
206-44-0	Fluoranthene	18	1000	ug/kg	FT-SB-411-0002	2/2	-	1,000	NA	70,000	1,000,000	No	BSL
86-73-7	Fluorene	19 J	19 J	ug/kg	FT-SB-411-0002	1/2	1.8 - 1.8	19	NA	4,000	386,000	No	BSL
193-39-5	**Indeno(1,2,3-cd)pyrene**	8.7	260	ug/kg	FT-SB-411-0002	2/2	-	260	NA	**120**	8,200	**Yes**	ASL
91-20-3	**Naphthalene**	5.8	11	ug/kg	FT-SB-411-0002	2/2	-	11	NA	**0.47**	12,000	**Yes**	ASL
85-01-8	Phenanthrene	12	550	ug/kg	FT-SB-411-0002	2/2	-	550	NA	9,500 [9]	1,000,000	No	BSL
129-00-0	Pyrene	21	840	ug/kg	FT-SB-411-0002	2/2	-	840	NA	9,500	1,000,000	No	BSL
PCBs													
11096-82-5	Aroclor-1248	22	22	ug/kg	FT-SB-413-0002	1/2	8.5 - 8.5	22	NA	24	3,200 [10]	No	BSL
12672-29-6	**Aroclor-1260**	46	46	ug/kg	FT-SB-411-0002	1/2	9 - 9	46	NA	**5.2**	3,200 [10]	**Yes**	ASL
Metals													
7429-90-5	Aluminum	3810	3810	mg/kg	FT-SB-413-0002	1/1	-	3,810	18,500	23,000	NA	No	BSL, BKG
7440-38-2	**Arsenic**	0.826 J	0.826 J	mg/kg	FT-SB-413-0002	1/1	-	0.826	14.5	**0.0013**	16	No	BKG
7440-39-3	Barium	7.63	7.63	mg/kg	FT-SB-413-0002	1/1	-	7.63	23.3	120	820	No	BSL, BKG
7440-41-7	Beryllium	0.085 J	0.085 J	mg/kg	FT-SB-413-0002	1/1	-	0.085	NA	13	47	No	BSL
7440-43-9	Cadmium	0.147 J	0.147 J	mg/kg	FT-SB-413-0002	1/1	-	0.147	2.8	0.52	7.5	No	BSL, BKG
7440-70-2	**Calcium**	841	841	mg/kg	FT-SB-413-0002	1/1	-	841	**236**	NA	NA	No	NUT
7440-47-3	Chromium	3.49	3.49	mg/kg	FT-SB-413-0002	1/1	-	3.49	64.2	NA	NA	No	BKG
7440-48-4	**Cobalt**	0.642 J	0.642 J	mg/kg	FT-SB-413-0002	1/1	-	0.642	NA	**0.21**	NA	**Yes**	ASL
7439-89-6	**Iron**	3110	3110	mg/kg	FT-SB-413-0002	1/1	-	3,110	17,100	**270**	NA	No	BKG
7439-92-1	Lead	3.99	3.99	mg/kg	FT-SB-413-0002	1/1	-	3.99	37.5	14 [11]	450	No	BSL, BKG
7439-95-4	Magnesium	125	125	mg/kg	FT-SB-413-0002	1/1	-	125	1,702	NA	NA	No	NUT, BKG
7439-96-5	Manganese	17.2	17.2	mg/kg	FT-SB-413-0002	1/1	-	17.2	99.2	21	2,000	No	BSL, BKG
7439-97-6	Mercury	0.021 J	0.021 J	mg/kg	FT-SB-413-0002	1/1	-	0.021	NA	0.033	0.73 [12]	No	BSL
7440-02-0	Nickel	1.74 J	1.74 J	mg/kg	FT-SB-413-0002	1/1	-	1.74	6.2	20	130	No	BSL, BKG
7440-62-2	Vanadium	5.6	5.6	mg/kg	FT-SB-413-0002	1/1	-	5.6	51.3	78	NA	No	BSL, BKG
7440-66-6	Zinc	10.9	10.9	mg/kg	FT-SB-413-0002	1/1	-	10.9	NA	290	2,480	No	BSL
Miscellaneous Parameters													
16065-83-1	Chromium III	3.49	3.49	mg/kg	FT-SB-413-0002	1/1	-	3.49	NA	28,000,000	NA	No	BSL
57-12-5	Cyanide	0.038 J	0.038 J	mg/kg	FT-SB-413-0002	1/1	-	0.038	NA	0.094	40	No	BSL

TABLE 6-4

OCCURRENCE, DISTRIBUTION, AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN
MIGRATION FROM SURFACE SOIL TO GROUNDWATER
SITE 2 - FIRE TRAINING AREA
NWIRP CALVERTON
CALVERTON, NEW YORK

Notes:
1 - Sample and duplicate are considered as two separate samples when determining the minimum and maximum concentrations.
2 - Values presented are sample-specific quantitation limits.
3 - The maximum detected concentration is used for screening purposes.
4 - Background concentration is the upper prediction limit, see Appendix G.
5 - USEPA Regional Screening Level (RSL), May 2012. Protection of groundwater values are risk-based soil screening levels (SSLs) and represent a dilution attenuation factor of 1.
6 - New York State Department of Environmental Conservation (NYSDEC) Remedial Program Soil Cleanup Objectives. Table 375-6.8(b). December 2006.
7 - The chemical is selected as a COPC if the maximum detected concentration exceeds the risk-based COPC screening level and is statistically determined to be greater than site background.
8 - Value is for acenaphthene.
9 - Value is for pyrene.
10 - Value is for PCBs.
11 - Value is MCL based SSL.
12 - Value is for total mercury.
Shaded criterion indicates that the maximum detected concentration exceeds one or more screening criteria. Shaded chemical name indicates that the chemical was retained as a COPC.

Associated Samples
FT-SB-411-0002
FT-SB-413-0002

Definitions:
CAS No. = Chemical Abstract Service Number
COPC = Chemical Of Potential Concern
J = Estimated value
NA = Not Applicable/Not Available

Rationale Codes:
For selection as a COPC:
ASL = Above Screening Level and site background.

For elimination as a COPC:
BKG = Less than Background Concentration
BSL = Below COPC Screening Level
NUT = Essential nutrient

TABLE 6-5

OCCURENCE, DISTRIBUTION, AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN
DIRECT CONTACT WITH SUBSURFACE SOIL
SITE 2 - FIRE TRAINING AREA
NWIRP CALVERTON
CALVERTON, NEW YORK

CAS No.	Chemical	Minimum Concentration[1]	Maximum Concentration[1]	Units	Sample of Maximum Concentration	Frequency of Detection	Range of Nondetects[2]	Concentration Used for Screening[3]	Background Concentration[4]	Adjusted USEPA RSL Residential Soil[5]	NYSDEC Soil Cleanup Objectives[6] Residential	COPC Flag	Rationale for Contaminant Deletion or Selection[7]
Volatile Organic Compounds													
--	m+p-Xylenes	1300 J	1300 J	ug/kg	FT-SB-408-1517	1/14	5 - 6000	1300	NA	59,000 N[8]	100,000 [9]	No	BSL
75-09-2	Methylene Chloride	2.4 J	2.4 J	ug/kg	FT-SB-410-1416	1/14	2.55 - 2950	2.4	NA	36,000 N[10]	51,000	No	BSL
95-47-6	o-Xylene	1200 J	1200 J	ug/kg	FT-SB-408-1517	1/14	2.55 - 2950	1200	NA	69,000 N	100,000 [9]	No	BSL
Polycyclic Aromatic Hydrocarbons													
120-12-7	Anthracene	28	40	ug/kg	FT-SB-408-1517	2/11	1.7 - 1.9	40	NA	1,700,000 N	100,000	No	BSL
56-55-3	**Benzo(a)anthracene**	130 J	310 J	ug/kg	FT-SB-409-1315	2/11	1.7 - 1.9	310	NA	**150 C**	1,000	**Yes**	ASL
50-32-8	**Benzo(a)pyrene**	110	140	ug/kg	FT-SB-409-1315	2/11	1.7 - 1.9	140	NA	**15 C**	1,000	**Yes**	ASL
205-99-2	**Benzo(b)fluoranthene**	1.4 J	360	ug/kg	FT-SB-409-1315	3/11	1.7 - 1.9	360	NA	**150 C**	1,000	**Yes**	ASL
191-24-2	Benzo(g,h,i)perylene	88	150	ug/kg	FT-SB-409-1315	2/11	1.7 - 1.9	150	NA	170,000 N[11]	100,000	No	BSL
207-08-9	Benzo(k)fluoranthene	56	130	ug/kg	FT-SB-409-1315	2/11	1.7 - 1.9	130	NA	1,500 C	1,000	No	BSL
218-01-9	Chrysene	160	350	ug/kg	FT-SB-409-1315	2/11	1.7 - 1.9	350	NA	15,000 C	1,000	No	BSL
53-70-3	**Dibenzo(a,h)anthracene**	22	45	ug/kg	FT-SB-409-1315	2/11	1.7 - 1.9	45	NA	**15 C**	330	**Yes**	ASL
206-44-0	Fluoranthene	390	870	ug/kg	FT-SB-409-1315	2/11	1.7 - 1.9	870	NA	230,000 N	100,000	No	BSL
86-73-7	Fluorene	300 J	590 J	ug/kg	FT-SB-408-1517	2/11	1.7 - 1.9	590	NA	230,000 N	100,000	No	BSL
193-39-5	Indeno(1,2,3-cd)pyrene	76	130	ug/kg	FT-SB-409-1315	2/11	1.7 - 1.9	130	NA	150 C	500	No	BSL
85-01-8	Phenanthrene	550	920	ug/kg	FT-SB-408-1517	2/11	1.7 - 1.9	920	NA	170,000 N[11]	100,000	No	BSL
129-00-0	Pyrene	350	740	ug/kg	FT-SB-409-1315	2/11	1.7 - 1.9	740	NA	170,000 N	100,000	No	BSL
Metals													
7429-90-5	Aluminum	511	5820	mg/kg	FT-SB-407-0608	5/5	-	5,820	18,500	7,700 N	NA	No	BSL, BKG
7440-38-2	**Arsenic**	0.383 J	1.58	mg/kg	FT-SB-407-0608	4/5	0.38 - 0.38	1.58	14.5	**0.39 C**	16	No	BKG, BKG
7440-39-3	Barium	1.39 J	10.8	mg/kg	FT-SB-401-0608	5/5	-	10.8	23.3	1,500 N	350	No	BSL, BKG
7440-41-7	Beryllium	0.107 J	0.125 J	mg/kg	FT-SB-407-0608	2/5	0.115 - 0.14	0.125	NA	16 N	14	No	BSL
7440-43-9	Cadmium	0.051 J	0.201 J	mg/kg	FT-SB-401-0608	4/5	0.14 - 0.14	0.201	2.8	7 N	2.5	No	BSL, BKG
7440-70-2	Calcium	33.8 J	80.3 J	mg/kg	FT-SB-403-0608-D	5/5	-	80.3	236	NA	NA	No	NUT, BKG
7440-47-3	Chromium	1.06	5.87	mg/kg	FT-SB-407-0608	5/5	-	5.87	64.2	NA	NA	No	BKG
7440-48-4	Cobalt	0.457 J	1.24 J	mg/kg	FT-SB-401-0608	3/5	0.585 - 0.695	1.24	NA	2.3 N	NA	No	BSL, BKG
7439-89-6	Iron	814	4420	mg/kg	FT-SB-407-0608	5/5	-	4,420	17,100	5,500 N	NA	No	BSL, BKG
7439-92-1	Lead	2.66	3.27	mg/kg	FT-SB-407-0608	2/5	0.809 - 1.09	3.27	37.5	400	400	No	BSL, BKG
7439-95-4	Magnesium	69.7 J	501	mg/kg	FT-SB-401-0608	5/5	-	501	1,702	NA	NA	No	NUT
7439-96-5	Manganese	5.28	34.7	mg/kg	FT-SB-401-0608	5/5	-	34.7	99.2	180 N	2,000	No	BSL, BKG
7439-97-6	Mercury	0.006 J	0.013 J	mg/kg	FT-SB-407-0608	2/5	0.005 - 0.005	0.013	NA	2.3 N[12]	0.81 [13]	No	BSL
7440-02-0	Nickel	0.424 J	2.18	mg/kg	FT-SB-401-0608	5/5	-	2.18	6.2	150 N	140	No	BSL, BKG
7440-09-7	Potassium	31.3 J	82.8 J	mg/kg	FT-SB-401-0608	2/5	38.15 - 46.4	82.8	355	NA	NA	No	NUT, BKG
7782-49-2	Selenium	0.55 J	0.55 J	mg/kg	FT-SB-401-0608	1/5	0.38 - 0.54	0.55	NA	39 N	36	No	BSL, BKG
7440-62-2	Vanadium	1.38 J	9.26	mg/kg	FT-SB-407-0608	5/5	-	9.26	51.3	39 N	NA	No	BSL, BKG
7440-66-6	Zinc	4.03	10.5	mg/kg	FT-SB-401-0608	5/5	-	10.5	NA	2,300 N	2,200	No	BSL, BKG
Miscellaneous Parameters													
16065-83-1	Chromium III	1.06	5.78	mg/kg	FT-SB-407-0608	5/5	-	5.78	NA	12,000 N	36	No	BSL
18540-29-9	Hexavalent Chromium	0.09 J	0.09 J	mg/kg	FT-SB-407-0608	1/5	0.205 - 0.215	0.09	NA	0.29 C	22	No	BSL

TABLE 6-5

OCCURENCE, DISTRIBUTION, AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN
DIRECT CONTACT WITH SUBSURFACE SOIL
SITE 2 - FIRE TRAINING AREA
NWIRP CALVERTON
CALVERTON, NEW YORK

Footnotes:
1 - Sample and duplicate are considered as two separate samples when determining the minimum and maximum concentrations.
2 - Values presented are sample-specific quantitation limits.
3 - The maximum detected concentration is used for screening purposes.
4 - Background concentration is the upper prediction limit, see Appendix G.
5 - USEPA Regional Screening Levels for Chemical Contaminants at Superfund Sites, May 2012. The noncarcinogenic values (denoted with a "N" flag) are the screening level divided by 10 to correspond to a target hazard quotient of 0.1. Carcinogenic values represent an incremental cancer risk of 1.0E-06 (carcinogens denoted with a "C" flag).
6 - New York State Department of Environmental Conservation (NYSDEC) Remedial Program Soil Cleanup Objectives. Table 375-6.8(b). December 2006.
7 - The chemical is selected as a COPC if the maximum detected concentration exceeds the risk-based COPC screening level and is statistically determined to be greater than site background.
8 - Value is for m-xylene.
9 - Value is for mixed xylenes.
10 - Ten percent of the noncarcinogenic value is less than the carcinogenic value; therefore the noncarcinogenic value is presented.
11 - Value is for pyrene.
12 - Value is for mercuric chloride (and other mercury salts).
13 - Value is for total mercury.
Shaded criterion indicates that the maximum detected concentration exceeds one or more screening criteria. Shaded chemical name indicates that the chemical was retained as a COPC.

Associated Samples
FT-SB-401-0608
FT-SB-402-0608
FT-SB-403-0608
FT-SB-403-0608-D
FT-SB-404-0305
FT-SB-404-0608
FT-SB-405-0204
FT-SB-405-0608
FT-SB-406-0406
FT-SB-407-0608
FT-SB-408-1517
FT-SB-409-1315
FT-SB-410-1416
FT-SB-410-1416-D
FT-SB-412-0204
FT-SB-412-1214
FT-SB-413-0810

Definitions:
C = Carcinogen
CAS No. = Chemical Abstract Service Number
COPC = Chemical Of Potential Concern
J = Estimated value
N = Noncarcinogen
mg/kg = milligram per kilogram
NA = Not Applicable/Not Available
µg/kg = microgram per kilogram

Rationale Codes:
For selection as a COPC:
ASL = Above Screening Level and site background.

For elimination as a COPC:
BKG = Less than Background Concentration
BSL = Below COPC Screening Level
NUT = Essential nutrient

TABLE 6-6

OCCURRENCE, DISTRIBUTION, AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN
MIGRATION FROM SUBSURFACE SOIL TO GROUNDWATER
SITE 2 - FIRE TRAINING AREA
NWIRP CALVERTON
CALVERTON, NEW YORK

CAS No.	Chemical	Minimum Concentration[1]	Maximum Concentration[1]	Units	Sample of Maximum Concentration	Frequency of Detection	Range of Nondetects[2]	Concentration Used for Screening[3]	Background Concentration[4]	USEPA RSL Protection of Groundwater[5]	NYSDEC Soil Cleanup Objectives[6]	COPC Flag	Rationale for Contaminant Deletion or Selection[7]
Volatile Organic Compounds													
--	**m+p-Xylenes**	1300 J	1300 J	ug/kg	FT-SB-408-1517	1/14	5 - 6000	1,300	NA	**180** [8]	1,600 [9]	**Yes**	ASL
75-09-2	Methylene Chloride	2.4 J	2.4 J	ug/kg	FT-SB-410-1416	1/14	2.55 - 2950	2.4	NA	2.5	50	No	BSL
95-47-6	**o-Xylene**	1200 J	1200 J	ug/kg	FT-SB-408-1517	1/14	2.55 - 2950	1,200	NA	**190**	1,600 [9]	**Yes**	ASL
Polycyclic Aromatic Hydrocarbons													
120-12-7	Anthracene	28	40	ug/kg	FT-SB-408-1517	2/11	1.7 - 1.9	40	NA	42,000	1,000,000	No	BSL
56-55-3	**Benzo(a)anthracene**	130 J	310 J	ug/kg	FT-SB-409-1315	2/11	1.7 - 1.9	310	NA	**10**	1,000	**Yes**	ASL
50-32-8	**Benzo(a)pyrene**	110	140	ug/kg	FT-SB-409-1315	2/11	1.7 - 1.9	140	NA	**3.5**	22,000	**Yes**	ASL
205-99-2	**Benzo(b)fluoranthene**	1.4 J	360	ug/kg	FT-SB-409-1315	3/11	1.7 - 1.9	360	NA	**35**	1,700	**Yes**	ASL
191-24-2	Benzo(g,h,i)perylene	88	150	ug/kg	FT-SB-409-1315	2/11	1.7 - 1.9	150	NA	9,500 [10]	1,000,000	No	BSL
207-08-9	Benzo(k)fluoranthene	56	130	ug/kg	FT-SB-409-1315	2/11	1.7 - 1.9	130	NA	350	1,700	No	BSL
218-01-9	Chrysene	160	350	ug/kg	FT-SB-409-1315	2/11	1.7 - 1.9	350	NA	1,100	1,000	No	BSL
53-70-3	**Dibenzo(a,h)anthracene**	22	45	ug/kg	FT-SB-409-1315	2/11	1.7 - 1.9	45	NA	**11**	1,000,000	**Yes**	ASL
206-44-0	Fluoranthene	390	870	ug/kg	FT-SB-409-1315	2/11	1.7 - 1.9	870	NA	70,000	1,000,000	No	BSL
86-73-7	Fluorene	300 J	590 J	ug/kg	FT-SB-408-1517	2/11	1.7 - 1.9	590	NA	4,000	386,000	No	BSL
193-39-5	**Indeno(1,2,3-cd)pyrene**	76	130	ug/kg	FT-SB-409-1315	2/11	1.7 - 1.9	130	NA	**120**	8,200	**Yes**	ASL
85-01-8	Phenanthrene	550	920	ug/kg	FT-SB-408-1517	2/11	1.7 - 1.9	920	NA	9,500 [10]	1,000,000	No	BSL
129-00-0	Pyrene	350	740	ug/kg	FT-SB-409-1315	2/11	1.7 - 1.9	740	NA	9,500	1,000,000	No	BSL
Metals													
7429-90-5	Aluminum	511	5820	mg/kg	FT-SB-407-0608	5/5	-	5,820	18,500	23,000	NA	No	BSL, BKG
7440-38-2	Arsenic	0.383 J	1.58	mg/kg	FT-SB-407-0608	4/5	0.38 - 0.38	1.58	14.5	**0.0013**	16	No	BKG
7440-39-3	Barium	1.39 J	10.8	mg/kg	FT-SB-401-0608	5/5	-	10.8	23.3	120	820	No	BSL, BKG
7440-41-7	Beryllium	0.107 J	0.125 J	mg/kg	FT-SB-407-0608	2/5	0.115 - 0.14	0.125	NA	13	47	No	BSL, BKG
7440-43-9	Cadmium	0.051 J	0.201 J	mg/kg	FT-SB-401-0608	4/5	0.14 - 0.14	0.201	2.8	0.52	7.5	No	BSL, BKG
7440-70-2	Calcium	33.8 J	80.3 J	mg/kg	FT-SB-403-0608-D	5/5	-	80.3	236	NA	NA	No	NUT, BKG
7440-47-3	Chromium	1.06	5.87	mg/kg	FT-SB-407-0608	5/5	-	5.87	64.2	NA	NA	No	BKG
7440-48-4	**Cobalt**	0.457 J	1.24 J	mg/kg	FT-SB-401-0608	3/5	0.585 - 0.695	1.24	NA	**0.21**	NA	**Yes**	ASL
7439-89-6	Iron	814	4420	mg/kg	FT-SB-407-0608	5/5	-	4,420	17,100	**270**	NA	No	BKG
7439-92-1	Lead	2.66	3.27	mg/kg	FT-SB-407-0608	2/5	0.809 - 1.09	3.27	37.5	14 [11]	450	No	BSL
7439-95-4	Magnesium	69.7 J	501	mg/kg	FT-SB-401-0608	5/5	-	501	1,702	NA	NA	No	NUT, BKG
7439-96-5	Manganese	5.28	34.7	mg/kg	FT-SB-401-0608	5/5	-	34.7	99.2	**21**	2,000	No	BKG
7439-97-6	Mercury	0.006 J	0.013 J	mg/kg	FT-SB-407-0608	2/5	0.005 - 0.005	0.013	NA	0.033	0.73 [12]	No	BSL, BKG
7440-02-0	Nickel	0.424 J	2.18	mg/kg	FT-SB-401-0608	5/5	-	2.18	6.2	20	130	No	BSL, BKG
7440-09-7	Potassium	31.3 J	82.8 J	mg/kg	FT-SB-401-0608	2/5	38.15 - 46.4	82.8	355	NA	NA	No	NUT
7782-49-2	**Selenium**	0.55 J	0.55 J	mg/kg	FT-SB-401-0608	1/5	0.38 - 0.54	0.55	NA	**0.4**	4	**Yes**	ASL
7440-62-2	Vanadium	1.38 J	9.26	mg/kg	FT-SB-407-0608	5/5	-	9.26	51.3	78	NA	No	BSL, BKG
7440-66-6	Zinc	4.03	10.5	mg/kg	FT-SB-401-0608	5/5	-	10.5	NA	290	2,480	No	BSL, BKG
Miscellaneous Parameters													
16065-83-1	Chromium III	1.06	5.78	mg/kg	FT-SB-407-0608	5/5	-	5.78	NA	28,000,000	NA	No	BSL, BKG
18540-29-9	**Hexavalent Chromium**	0.09 J	0.09 J	mg/kg	FT-SB-407-0608	1/5	0.205 - 0.215	0.09	NA	**0.00059**	19	**Yes**	ASL

TABLE 6-6

OCCURRENCE, DISTRIBUTION, AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN
MIGRATION FROM SUBSURFACE SOIL TO GROUNDWATER
SITE 2 - FIRE TRAINING AREA
NWIRP CALVERTON
CALVERTON, NEW YORK

Notes:
1 - Sample and duplicate are considered as two separate samples when determining the minimum and maximum concentrations.
2 - Values presented are sample-specific quantitation limits.
3 - The maximum detected concentration is used for screening purposes.
4 - Background concentration is the upper prediction limit, see Appendix G.
5 - USEPA Regional Screening Level (RSL), May 2012. Protection of groundwater values are risk-based soil screening levels (SSLs) and represent a dilution attenuation factor of 1.
6 - New York State Department of Environmental Conservation (NYSDEC) Remedial Program Soil Cleanup Objectives. Table 375-6.8(b). December 2006.
7 - The chemical is selected as a COPC if the maximum detected concentration exceeds the risk-based COPC screening level and is statistically determined to be greater than site background.
8 - Value is for m-xylene.
9 - Value is for mixed xylenes.
10 - Value is for pyrene.
11 - Value is MCL based soil screening level.
12 - Value is for total mercury.
Shaded criterion indicates that the maximum detected concentration exceeds one or more screening criteria. Shaded chemical name indicates that the chemical was retained as a COPC.

Associated Samples
FT-SB-401-0608
FT-SB-402-0608
FT-SB-403-0608
FT-SB-403-0608-D
FT-SB-404-0305
FT-SB-404-0608
FT-SB-405-0204
FT-SB-405-0608
FT-SB-406-0406
FT-SB-407-0608
FT-SB-408-1517
FT-SB-409-1315
FT-SB-410-1416
FT-SB-410-1416-D
FT-SB-412-0204
FT-SB-412-1214
FT-SB-413-0810

Definitions:
CAS No. = Chemical Abstract Service Number
COPC = Chemical Of Potential Concern
J = Estimated value
mg/kg = milligram per kilogram
NA = Not Applicable/Not Available
µg/kg = microgram per kilogram

Rationale Codes:
For selection as a COPC:
ASL = Above Screening Level and site background.

For elimination as a COPC:
BKG = Less than Background Concentration
BSL = Below COPC Screening Level
NUT = Essential nutrient

TABLE 6 - 7

OCCURENCE, DISTRIBUTION, AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN
DIRECT CONTACT WITH GROUNDWATER
SITE 2 - FIRE TRAINING AREA
NWIRP CALVERTON
CALVERTON, NEW YORK

CAS No.	Chemical	Minimum Concentration[1]	Maximum Concentration[1]	Units	Sample of Maximum Concentration	Frequency of Detection	Range of Nondetects[2]	Concentration Used for Screening[3]	Range of Background Concentrations[4]	Adjusted USEPA RSL Tapwater[5]	USEPA MCL[6]	NYSDOH MCL[7]	COPC Flag	Rationale for Contaminant Deletion or Selection[8]
Volatile Organic Compounds														
75-34-3	1,1-Dichloroethane	0.81 J	1.3	ug/L	FT-MW02S-20110929-D	3/26	0.5 - 0.5	1.3	NA	2.4 C	NA	5	No	BSL
95-50-1	1,2-Dichlorobenzene	0.58 J	3.9	ug/L	FT-MW02S-20110929	2/23	0.5 - 0.5	3.9	NA	28 N	600	5	No	BSL
106-46-7	**1,4-Dichlorobenzene**	1.2	1.3	ug/L	FT-MW02S-20110929	1/23	0.5 - 0.5	1.3	NA	**0.42 C**	75	5	**Yes**	ASL
78-93-3	2-Butanone	6 J	26 J	ug/L	FT-MW-02S-20110315	2/26	2.5 - 2.5	26	NA	490 N	NA	50	No	BSL
67-64-1	Acetone	9.5 J	27 J	ug/L	FT-MW-02S-20110315	2/26	2.5 - 2.5	27	NA	1200 N	NA	50	No	BSL
67-66-3	**Chloroform**	0.5 J	0.79 J	ug/L	FT-MW05I-20110929	4/23	0.5 - 0.5	0.79	NA	**0.19 C**	80	50	**Yes**	ASL
156-59-2	**cis-1,2-Dichloroethene**	0.54 J	4.1 J	ug/L	FT-MW-02S-20110315	3/26	0.5 - 0.5	4.1	NA	**2.8 N**	70	5	**Yes**	ASL
100-41-4	**Ethylbenzene**	4.7	4.8	ug/L	FT-MW-02S-20110315-D	1/26	0.5 - 0.5	4.8	NA	**1.3 C**	700	5	**Yes**	ASL
98-82-8	Isopropylbenzene	0.8 J	0.89 J	ug/L	FT-MW-02S-20110315	1/23	0.5 - 0.5	0.89	NA	39 N	NA	50	No	BSL
--	**m+p-Xylenes**	7.6	7.8	ug/L	FT-MW-02S-20110315	1/26	1 - 1	7.8	NA	19 N[9]	10,000 [10]	**5**	**Yes**	ASL
95-47-6	**o-Xylene**	2.8	16	ug/L	FT-MW-02S-20110315 FT-MW-02S-20110315-D	2/26	0.5 - 0.5	16	NA	19 N	10,000 [10]	**5**	**Yes**	ASL
127-18-4	Tetrachloroethene	0.91 J	0.91 J	ug/L	FT-MW-02S-20110315-D	1/26	0.5 - 0.5	0.91	NA	3.5 N[11]	5	5	No	BSL
108-88-3	Toluene	4.4	4.5	ug/L	FT-MW-02S-20110315	1/26	0.5 - 0.5	4.5	NA	86 N	1000	5	No	BSL
79-01-6	**Trichloroethene**	0.74 J	12	ug/L	FT-MW-02S-20110315-D	3/26	0.5 - 0.5	12	NA	**0.26 N[11]**	**5**	**5**	**Yes**	ASL
75-01-4	**Vinyl Chloride**	1.4	1.8	ug/L	FT-MW02S-20110929	1/26	0.5 - 0.5	1.8	NA	**0.015 C**	2	2	**Yes**	ASL
Volatile Gases														
74-82-8	Methane	208	470.6	ug/L	FT-MW-02S-20110315	2/6	2.5 - 2.5	470.6	NA	NA	NA	NA	No	NTX

Notes:
1 - Sample and duplicate are considered as two separate samples when determining the minimum and maximum concentrations.
2 - Values presented are sample-specific quantitation limits.
3 - The maximum detected concentration is used for screening purposes.
4 - No background data is available for groundwater.
5 - USEPA Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites, May 2012. RSLs for carcinogens correspond to an integrated lifetime cancer risk (ILCR) of 1E-06; adjusted RSLs for noncarcinogens correspond to a hazard quotient (HQ) of 0.1.
6 - 2011 Edition of the Drinking Water Standards and Health Advisories (USEPA, January 2011).
7 - New York State Department of Health (NYSDOH) Part 5, Subpart 5-1 Public Water Systems, Table 3 Organic Chemicals - Maximum Contaminant Level (MCL) Determination, March 2010.
8 - The chemical is selected as a COPC if the maximum detected concentration exceeds the risk-based COPC screening level.
9 - Value is for m-xylene.
10 - Value is for total xylenes.
11 - Ten percent of the noncarcinogenic value is less than the carcinogenic value; therefore the noncarcinogenic value is presented.
Shaded criterion indicates that the maximum detected concentration exceeds one or more screening criteria. Shaded chemical name indicates that the chemical was retained as a COPC.

Associated Samples

FT-MW-01I-20110314	FT-MW03S-20111018	FT-MW-07S-20110315
FT-MW01I-20111018	FT-MW-04-20110314	FT-MW07S-20110929
FT-MW-01S-20110314	FT-MW04-20110929	FT-MW-08I-20110314
FT-MW01S-20111018	FT-MW-05I-20110314	FT-MW08I-20110929
FT-MW-02I-20110315	FT-MW05I-20110929	FT-MW-08S-20110314
FT-MW02I-20110929	FT-MW-05S-20110314	FT-MW08S-20110929
FT-MW-02S-20110315	FT-MW05S-20110929	
FT-MW-02S-20110315-D	FT-MW-06I-20110314	
FT-MW02S-20110929	FT-MW06I-20110929	
FT-MW02S-20110929-D	FT-MW-06S-20110314	
FT-MW-03-20110314	FT-MW06S-20110929	

Definitions:
C = Carcinogen
CAS No. = Chemical Abstract Service Number
COPC = Chemical Of Potential Concern
J = Estimated value
N = Noncarcinogen
NA = Not Applicable/Not Available
µg/L = Micorgrams per Liter

Rationale Codes:
For selection as a COPC:
ASL = Above Screening Level and site background.

For elimination as a COPC:
BSL = Below COPC Screening Level
NUT = Essential nutrient
NTX = No toxicity criteria

TABLE 6-8

OCCURRENCE, DISTRIBUTION, AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN
VAPOR INTRUSION
SITE - FIRE TRAINING AREA
NWIRP CALVERTON
CALVERTON, NEW YORK

CAS Number	Chemical	Minimum Concentration[1]	Maximum Concentration[1]	Units	Sample of Maximum Concentration	Frequency of Detection	Range of Nondetects[2]	Concentration Used for Screening[3]	Range of Background Concentrations[4]	USEPA Groundwater Volatilization Criterion[5]	Potential ARAR/TBC	Potential ARAR/TBC Source[6]	COPC Flag	Rationale for Contaminant Deletion or Selection[7]
Volatile Organic Compounds														
75-34-3	1,1-Dichloroethane	0.81 J	1.3	ug/L	FT-MW02S-20110929-D	3/26	0.5 - 0.5	1.3	NA	6.6 C	5	NYSDOH MCL	No	BSL
95-50-1	1,2-Dichlorobenzene	0.58 J	3.9	ug/L	FT-MW02S-20110929	2/23	0.5 - 0.5	3.9	NA	NVT	5	NYSDOH MCL	No	NVT
106-46-7	1,4-Dichlorobenzene	1.2	1.3	ug/L	FT-MW02S-20110929	1/23	0.5 - 0.5	1.3	NA	2.2 C	5	NYSDOH MCL	No	BSL
78-93-3	2-Butanone	6 J	26 J	ug/L	FT-MW-02S-20110315	2/26	2.5 - 2.5	26	NA	NVT	50	NYSDOH MCL	No	NVT
67-64-1	Acetone	9.5 J	27 J	ug/L	FT-MW-02S-20110315	2/26	2.5 - 2.5	27	NA	NVT	50	NYSDOH MCL	No	NVT
67-66-3	**Chloroform**	0.5 J	0.79 J	ug/L	FT-MW05I-20110929	4/23	0.5 - 0.5	0.79	NA	**0.71 C**	50	NYSDOH MCL	**Yes**	ASL
156-59-2	cis-1,2-Dichloroethene	0.54 J	4.1 J	ug/L	FT-MW-02S-20110315	3/26	0.5 - 0.5	4.1	NA	NA	5	NYSDOH MCL	No	NTX
100-41-4	**Ethylbenzene**	4.7	4.8	ug/L	FT-MW-02S-20110315-D	1/26	0.5 - 0.5	4.8	NA	**3 C**	5	NYSDOH MCL	**Yes**	ASL
98-82-8	Isopropylbenzene	0.8 J	0.89 J	ug/L	FT-MW-02S-20110315	1/23	0.5 - 0.5	0.89	NA	NVT	50	NYSDOH MCL	No	NVT
--	m+p-Xylenes	7.6	7.8	ug/L	FT-MW-02S-20110315	1/26	1 - 1	7.8	NA	36 N[8]	**5**	NYSDOH MCL	No	BSL
95-47-6	o-Xylene	2.8	16	ug/L	FT-MW-02S-20110315, FT-MW-02S-20110315-D	2/26	0.5 - 0.5	16	NA	49 N	**5**	NYSDOH MCL	No	BSL
127-18-4	**Tetrachloroethene**	0.91 J	0.91 J	ug/L	FT-MW-02S-20110315-D	1/26	0.5 - 0.5	0.91	NA	**0.57 C**	5	NYSDOH MCL	**Yes**	ASL
108-88-3	Toluene	4.4	4.5	ug/L	FT-MW-02S-20110315	1/26	0.5 - 0.5	4.5	NA	NVT	5	NYSDOH MCL	No	NVT
79-01-6	**Trichloroethene**	0.74 J	12	ug/L	FT-MW-02S-20110315-D	3/26	0.5 - 0.5	12	NA	**0.52 N**	**5**	NYSDOH MCL	**Yes**	ASL
75-01-4	**Vinyl Chloride**	1.4	1.8	ug/L	FT-MW02S-20110929	1/26	0.5 - 0.5	1.8	NA	**0.14 C**	2	NYSDOH MCL	**Yes**	ASL
Volatile Gases														
74-82-8	Methane	208	470.6	ug/L	FT-MW-02S-20110315	2/6	2.5 - 2.5	470.6	NA	NA	NA	NA	No	NTX

Notes:
1 - Sample and duplicate are considered as two separate samples when determining the minimum and maximum concentrations.
2 - Values presented are sample-specific quantitation limits.
3 - The maximum detected concentration is used for screening purposes.
4 - No background data is available for groundwater.
5 - USEPA's Vapor Intrusion Screening Level (VISL) calculator (USEPA, March 2012). Values correspond to a target cancer risk level of 1E-06 or HQ = 0.1 and an attenuation factor of 0.001.
6 - New York State Department of Health (NYSDOH) Part 5, Subpart 5-1 Public Water Systems, Table 3 Organic Chemicals - Maximum Contaminant Level (MCL) Determination, March 2010.
7 - The chemical is selected as a COPC if the maximum detected concentration exceeds the risk-based COPC screening level.
8 - Value is for m-xylene.
Shaded criterion indicates that the maximum detected concentration exceeds one or more screening criteria. Shaded chemical name indicates that the chemical was retained as a COPC.

Associated Samples

FT-MW-01I-20110314
FT-MW01I-20111018
FT-MW-01S-20110314
FT-MW01S-20111018
FT-MW-02I-20110315
FT-MW02I-20110929
FT-MW-02S-20110315
FT-MW-02S-20110315-D
FT-MW02S-20110929
FT-MW02S-20110929-D
FT-MW-03-20110314
FT-MW03S-20111018
FT-MW-04-20110314
FT-MW04-20110929
FT-MW-05I-20110314
FT-MW05I-20110929
FT-MW-05S-20110314
FT-MW05S-20110929
FT-MW-06I-20110314
FT-MW06I-20110929
FT-MW-06S-20110314
FT-MW06S-20110929
FT-MW-07S-20110315
FT-MW07S-20110929
FT-MW-08I-20110314
FT-MW08I-20110929
FT-MW-08S-20110314
FT-MW08S-20110929

Definitions:
ARAR/TBC = Applicable or Relevant and Appropriate Requirements To Be Considered
C = Carcinogen
CAS No. = Chemical Abstract Service Number
COPC = Chemical Of Potential Concern
J = Estimated value
N = Noncarcinogen
NA = Not Applicable/Not Available
µg/L = Micorgrams per Liter

Rationale Codes:
For selection as a COPC:
ASL = Above Screening Level and site background.

For elimination as a COPC:
BSL = Below COPC Screening Level
NTX = No toxicity criteria
NVT = Not sufficiently volatile and/or toxic to pose inhalation risk

TABLE 6 - 9

OCCURENCE, DISTRIBUTION, AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN
MIGRATION FROM GROUNDWATER TO SURFACE WATER
SITE 2 - FIRE TRAINING AREA
NWIRP CALVERTON
CALVERTON, NEW YORK

CAS Number	Chemical	Minimum Concentration(1)	Maximum Concentration(1)	Units	Sample of Maximum Concentration	Frequency of Detection	Range of Nondetects(2)	Concentration Used for Screening(3)	Range of Background Concentrations(4)	NYSDEC Surface Water Quality Standards(5)	National Recommended Water Quality Criteria(6)		COPC Flag	Rationale for Contaminant Deletion or Selection(7)
											Human Health Consumption of	Human Health Consumption of		
Volatile Organic Compounds														
75-34-3	1,1-Dichloroethane	0.81 J	1.3	ug/L	FT-MW02S-20110929-D	3/26	0.5 - 0.5	1.3	NA	NA	NA	NA	No	NTX
95-50-1	**1,2-Dichlorobenzene**	0.58 J	3.9	ug/L	FT-MW02S-20110929	2/23	0.5 - 0.5	3.9	NA	**5** (8,9)	420	1,300	**Yes**	ASL
106-46-7	**1,4-Dichlorobenzene**	1.2	1.3	ug/L	FT-MW02S-20110929	1/23	0.5 - 0.5	1.3	NA	**5** (8,9)	63	190	**Yes**	ASL
78-93-3	2-Butanone	6 J	26 J	ug/L	FT-MW-02S-20110315	2/26	2.5 - 2.5	26	NA	NA	NA	NA	No	NTX
67-64-1	Acetone	9.5 J	27 J	ug/L	FT-MW-02S-20110315	2/26	2.5 - 2.5	27	NA	NA	NA	NA	No	NTX
67-66-3	Chloroform	0.5 J	0.79 J	ug/L	FT-MW05I-20110929	4/23	0.5 - 0.5	0.79	NA	NA	5.7	470	No	BSL
156-59-2	cis-1,2-Dichloroethene	0.54 J	4.1 J	ug/L	FT-MW-02S-20110315	3/26	0.5 - 0.5	4.1	NA	NA	NA	NA	No	NTX
100-41-4	Ethylbenzene	4.7	4.8	ug/L	FT-MW-02S-20110315-D	1/26	0.5 - 0.5	4.8	NA	NA	530	2,100	No	BSL
98-82-8	Isopropylbenzene	0.8 J	0.89 J	ug/L	FT-MW-02S-20110315	1/23	0.5 - 0.5	0.89	NA	NA	NA	NA	No	NTX
--	m+p-Xylenes	7.6	7.8	ug/L	FT-MW-02S-20110315	1/26	1 - 1	7.8	NA	NA	NA	NA	No	NTX
95-47-6	o-Xylene	2.8	16	ug/L	FT-MW-02S-20110315 FT-MW-02S-20110315-D	2/26	0.5 - 0.5	16	NA	NA	NA	NA	No	NTX
127-18-4	**Tetrachloroethene**	0.91 J	0.91 J	ug/L	FT-MW-02S-20110315-D	1/26	0.5 - 0.5	0.91	NA	NA	**0.69**	3.3	**Yes**	ASL
108-88-3	Toluene	4.4	4.5	ug/L	FT-MW-02S-20110315	1/26	0.5 - 0.5	4.5	NA	6,000 (10)	1,300	15,000	No	BSL
79-01-6	**Trichloroethene**	0.74 J	12	ug/L	FT-MW-02S-20110315-D	3/26	0.5 - 0.5	12	NA	40 (10)	**2.5**	30	**Yes**	ASL
75-01-4	**Vinyl Chloride**	1.4	1.8	ug/L	FT-MW02S-20110929	1/26	0.5 - 0.5	1.8	NA	NA	**0.025**	2.4	**Yes**	ASL
Volatile Gases														
74-82-8	Methane	208	470.6	ug/L	FT-MW-02S-20110315	2/6	2.5 - 2.5	470.6	NA	NA	NA	NA	No	NTX

Notes:
1 - Sample and duplicate are considered as two separate samples when determining the minimum and maximum concentrations.
2 - Values presented are sample-specific quantitation limits.
3 - The maximum detected concentration is used for screening purposes.
4 - No background data is available for groundwater.
5 - New York State Department of Environmental Conservation (NYSDEC) Part 703.5, Surface Water and Groundwater Quality Standards and Groundwater Effluent Limitations. Values presented are for Class C surface waters.
6 - USEPA National Recommended Water Quality Criteria, 2009.
7 - The chemical is selected as a COPC if the maximum detected concentration exceeds the risk-based COPC screening level.
8 - Value is for sum of dichlorobenzenes.
9 - Based on Aquatic (Chronic).
10 - Based on Health (Fish Consumption).
Shaded criterion indicates that the maximum detected concentration exceeds one or more screening criteria. Shaded chemical name indicates that the chemical was retained as a COPC.

Associated Samples

FT-MW-01I-20110314	FT-MW03S-20111018	FT-MW-08S-20110314
FT-MW01I-20111018	FT-MW-04-20110314	FT-MW08S-20110929
FT-MW-01S-20110314	FT-MW04-20110929	FT-MW-07S-20110315
FT-MW01S-20111018	FT-MW-05I-20110314	FT-MW07S-20110929
FT-MW-02I-20110315	FT-MW05I-20110929	FT-MW-08I-20110314
FT-MW02I-20110929	FT-MW-05S-20110314	FT-MW08I-20110929
FT-MW-02S-20110315	FT-MW05S-20110929	
FT-MW-02S-20110315-D	FT-MW-06I-20110314	
FT-MW02S-20110929	FT-MW06I-20110929	
FT-MW02S-20110929-D	FT-MW-06S-20110314	
FT-MW-03-20110314	FT-MW06S-20110929	

Definitions:
C = Carcinogen
CAS No. = Chemical Abstract Service Number
COPC = Chemical Of Potential Concern
J = Estimated value
N = Noncarcinogen
NA = Not Applicable/Not Available
µg/L = Micorgrams per Liter

Rationale Codes:
For selection as a COPC:
ASL = Above Screening Level and site background.

For elimination as a COPC:
BSL = Below COPC Screening Level
NUT = Essential nutrient
NTX = No toxicity criteria

TABLE 6 - 10

CHEMICALS RETAINED AS COPCs
SITE 2 - FIRE TRAINING AREA
NWIRP CALVERTON
CALVERTON, NEW YORK

Chemical	Surface Soil		Subsurface Soil		Groundwater		
	Direct Contact	Soil to Groundwater	Direct Contact	Soil to Groundwater	Direct Contact	Vapor Intrusion	Groundwater to Surface Water
Volatile Organic Compounds							
1,2-Dichlorobenzene					E		N
1,4-Dichlorobenzene					E		N
Chloroform					E	E	
cis-1,2-Dichloroethene					E		
Ethylbenzene					E	E	
m+p-Xylenes				E	E		
o-Xylene				E	E		
Tetrachloroethene						E	E
Trichloroethene					E, N	E	E
Vinyl Chloride					E	E	E
Polycyclic Aromatic Hydrocarbons (PAHs)							
Benzo(a)anthracene	E	E	E	E			
Benzo(a)pyrene	E	E	E	E			
Benzo(b)fluoranthene	E	E	E	E			
Dibenzo(a,h)anthracene	E	E	E	E			
Indeno(1,2,3-cd)pyrene	E	E		E			
Naphthalene		E					
Polychlorinated Biphenyls (PCBs)							
Aroclor-1260		E					
Metals							
Cobalt		E		E			
Selenium				E			
Miscellaneous Parameters							
Hexavalent Chromium				E			

Notes:
E = Chemical exceeded USEPA screening criteria and was retained as a COPC.
N = Chemical exceeded NYSDEC or NYSDOH screening criteria and was retained as a COPC.

COPCs = Contaminants of Potential Concern
USEPA = United States Environmental Protection Agency
NYSDEC = New York State Department of Environmental Conservation
NYSDOH = New York State Department of Health

TABLE 6-11

SELECTION OF EXPOSURE PATHWAYS
SITE 2 - FIRE TRAINING AREA
NWIRP CALVERTON
CALVERTON, NEW YORK

Scenario Timeframe	Medium	Exposure Medium	Exposure Point	Receptor Population	Receptor Age	Exposure Route	Type of Analysis	Rationale for Selection or Exclusion of Exposure Pathway
Future	Surface Soil	Surface Soil	Site 2	Construction Workers	Adult	Ingestion Dermal	Quant Quant	Construction workers may have contact with surface soil during excavation activities.
				Industrial Worker	Adult	Ingestion Dermal	Quant Quant	Industrial workers may contact surface soil during normal work activities.
				Recreational Users	Child	Ingestion Dermal	Quant Quant	Recreational users may contact surface soil while at the site.
					Adult	Ingestion Dermal	Quant Quant	
				Residents	Child	Ingestion Dermal	Quant Quant	Although a future residential scenario is considered unlikely at the site this scenario is included to aid in future risk management decisions.
					Adult	Ingestion Dermal	Quant Quant	
		Air	Site 2	Construction Workers	Adult	Inhalation	Quant	Construction workers may be exposed to fugitive dust and volatile emissions during construction activities.
				Industrial Worker	Adult	Inhalation	Quant	Industrial workers may be exposed to fugitive dust and volatile emissions during work activities.
				Recreational Users	Child	Inhalation	Quant	Recreational users may be exposed to fugitive dust and volatile emissions while at the site.
					Adult	Inhalation	Quant	
				Residents	Child	Inhalation	Quant	Although a future residential scenario is considered unlikely at the site this scenario is included to aid in future risk management decisions.
					Adult	Inhalation	Quant	
	Subsurface Soil	Subsurface Soil	Site 2	Construction Workers	Adult	Ingestion Dermal	Quant Quant	Construction workers may have contact with subsurface soil during excavation activities.
				Industrial Worker	Adult	Ingestion Dermal	Quant Quant	Although exposures to subsurface soil by industrial workers is considered unlikely at the site this scenario is included to aid in future risk management decisions.
				Recreational Users	Child	Ingestion Dermal	Quant Quant	Although exposures to subsurface soil by recreational users is considered unlikely at the site this scenario is included to aid in future risk management decisions.
					Adult	Ingestion Dermal	Quant Quant	
				Residents	Child	Ingestion Dermal	Quant Quant	Although a future residential scenario is considered unlikely at the site this scenario is included to aid in future risk management decisions.
					Adult	Ingestion Dermal	Quant Quant	
		Air	Site 2	Construction Workers	Adult	Inhalation	Quant	Construction workers may have contact with subsurface soil during excavation activities.
				Industrial Worker	Adult	Inhalation	Quant	Although exposures to subsurface soil by industrial workers is considered unlikely at the site this scenario is included to aid in future risk management decisions.

TABLE 6-11

SELECTION OF EXPOSURE PATHWAYS
SITE 2 - FIRE TRAINING AREA
NWIRP CALVERTON
CALVERTON, NEW YORK

Scenario Timeframe	Medium	Exposure Medium	Exposure Point	Receptor Population	Receptor Age	Exposure Route	Type of Analysis	Rationale for Selection or Exclusion of Exposure Pathway
Future	Subsurface Soil	Air	Site 2	Recreational Users	Child	Inhalation	Quant	Although exposures to subsurface soil by recreational users is considered unlikely at the site this scenario is included to aid in future risk management decisions.
					Adult	Inhalation	Quant	
				Residents	Child	Inhalation	Quant	Although a future residential scenario is considered unlikely at the site this scenario is included to aid in future risk management decisions.
					Adult	Inhalation	Quant	
	Groundwater	Groundwater	Site 2	Construction Workers	Adult	Ingestion Dermal	Quant Quant	Construction workers may have contact with groundwater during excavation activities.
				Industrial Worker	Adult	Inhalation	None	Industrial workers are not expected to be exposed to groundwater.
				Recreational Users	Child	Ingestion Dermal	None None	Recreational users are not expected to be exposed to groundwater.
					Adult	Ingestion Dermal	None None	
				Residents	Child	Ingestion Dermal	Quant Quant	Although a future residential scenario is considered unlikely at the site this scenario is included to aid in future risk management decisions.
					Adult	Ingestion Dermal	Quant Quant	
		Air	Site 2	Construction Workers	Adult	Inhalation	Quant	Construction workers may be exposed to chemicals which have volatilized from groundwater.
				Industrial Worker	Adult	Inhalation	None	Industrial workers are not expected to be exposed to COPCs that have volatilized from groundwater.
				Recreational Users	Child	Inhalation	None	Recreational users are not expected to be exposed to groundwater.
					Adult	Inhalation	None	
				Residents	Child	Inhalation	Quant	Although a future residential scenario is considered unlikely at the site this scenario is included to aid in future risk management decisions.
					Adult	Inhalation	Quant	
			Vapor Intrusion	Residents	Child	Inhalation	Qual	Hypothetical residents could be exposed to COPCs that have volatilized from groundwater and migrated through building foundations and into indoor air.
					Adult	Inhalation	Qual	
				Industrial Worker	Adult	Inhalation	Qual	Future industrial workers could be exposed to COPCs that have volatilized from groundwater and migrated through building foundations and into indoor air.

Notes:
Qual - Qualitative
Quant - Quantitative

TABLE 6-12

RECEPTORS AND EXPOSURE ROUTES FOR QUANTITATIVE EVALUATION
SITE 2 - FIRE TRAINING AREA
NWIRP CALVERTON
CALVERTON, NEW YORK

Receptors	Exposure Routes
Construction Workers (future land use)	• Soil incidental ingestion • Soil dermal contact • Inhalation of air/dust emissions • Groundwater incidental ingestion (during excavation) • Groundwater dermal contact (during excavation) • Groundwater inhalation of volatile organics (during excavation)
Industrial Worker (future land use)	• Soil incidental ingestion • Soil dermal contact • Inhalation of air/dust emissions • Inhalation of vapors intruding into a building from the groundwater(1)
Small Child (0 to 6 years) and Adult Recreational Users (future land use)	• Soil incidental ingestion • Soil dermal contact • Inhalation of air/dust emissions
Residents (Adult/Children) (future land use)	• Soil incidental ingestion • Soil dermal contact • Inhalation of air/dust emissions • Ingestion of groundwater • Groundwater dermal contact (showering/bathing) • Inhalation of volatiles in groundwater (showering/bathing) • Inhalation of vapors intruding into a building from the groundwater(1)

1 – Evaluated qualitatively.

TABLE 6 - 13

EXPOSURE POINT CONCENTRATIONS
SITE 2 - FIRE TRAINING AREA
NWIRP CALVERTON
CALVERTON, NEW YORK

Chemical	Surface/ Subsurface Soil (mg/kg)	Groundwater (ug/L)
Volatile Organic Compounds		
1,4-Dichlorobenzene	NA	1.3
Chloroform	NA	0.545
cis-1,2-Dichloroethene	NA	0.892
Ethylbenzene	NA	4.8
m+p-Xylenes	NA	7.8
o-Xylene	NA	16
Trichloroethene	NA	1.91
Vinyl Chloride	NA	1.8
Polycyclic Aromatic Hydrocarbons		
Benzo(a)anthracene	0.228	NA
Benzo(a)pyrene	0.125	NA
Benzo(b)fluoranthene	0.184	NA
Dibenzo(a,h)anthracene	0.026	NA
Indeno(1,2,3-cd)pyrene	0.084	NA

Notes:
The EPCs were calculated according to USEPA's ProUCL guidance. See the RAGS PART D Table 3s in Appendix H.3 for details concerning the EPCs.

EPCs = Exposure Point Concentrations
mg/kg = milligram per kilogram
NA = Not applicable. Not a COPC for this media.
RAGs = Risk Assessment Guidance for Superfund
USEPA = United States Environmental Protection Agency
µg/L = micrograms per Liter

TABLE 6-14

SUMMARY OF EXPOSURE INPUT PARAMETERS - REASONABLE MAXIMUM EXPOSURES
SITE 2 - FIRE TRAINING AREA
NWIRP CALVERTON
CALVERTON, NEW YORK

Parameter Code	Exposure Parameter	Construction Worker	Industrial Worker	Child Recreational User	Adult Recreational User	On-Site Child Resident	On-Site Adult Resident
All Exposures							
C_{soil}	Exposure concentration for soil (mg/kg)	95% UCL[1]	95% UCL[1]	95% UCL[1]	95% UCL[1]	95% UCL[1]	95% UCL[1]
ED	Exposure Duration (years)	1[2]	25[3]	6[3]	24[3]	6[3]	24[3]
BW	Body Weight (kg)	70[4]	70[3]	15[3]	70[3]	15[3]	70[3]
AT-N	Averaging Time (Non-Cancer) (days)	365[5]	9,125[5]	2,190[5]	8,760[5]	2,190[5]	8,760[5]
AT-C	Averaging Time (Cancer) (days)	25,550[5]	25,550[5]	25,550[5]	25,550[5]	25,550[5]	25,550[5]
Incidental Ingestion/Dermal Contact with Soil							
IR	Ingestion Rate (mg/day)	330[4]	100[3]	200[3]	100[3]	200[3]	100[3]
EF	Exposure Frequency (days/year)	250[4]	250[3]	52[6]	52[6]	350[3]	350[3]
FI	Fraction Ingested (unitless)	1[4]	1[3]	0.5[2]	0.5[2]	1[3]	1[3]
SA	Skin Surface Available for Contact (cm^2)	3,300[4]	3,300[7]	2,800[7]	5,700[7]	2,800[7]	5,700[7]
AF	Soil to Skin Adherence Factor (mg/cm^2/event)	0.3[4]	0.2[7]	0.2[7]	0.07[7]	0.2[7]	0.07[7]
ABS	Absorption Factor (unitless)	chemical-specific[7]	chemical-specific[7]	chemical-specific[7]	chemical-specific[7]	chemical-specific[7]	chemical-specific[7]
CF	Conversion Factor (kg/mg)	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06
Inhalation Fugitive Dust/Volatile Emissions from Soil							
C_{air}	Exposure concentration for air (mg/m^3)	calculated[4]	calculated[4]	calculated[4]	calculated[4]	calculated[4]	calculated[4]
ET	Exposure Time (hours/day)	8[4]	8[4]	4[2]	4[2]	24[4]	24[4]
EF	Exposure Frequency (days/year)	250[4]	250[3]	52[6]	52[6]	350[3]	350[3]
PEF	Particulate Emission Factor (m^3/kg)	1.4E+06[6]	1.21E+09[8]	1.21E+09[8]	1.21E+09[8]	1.21E+09[8]	1.21E+09[8]
Ingestion/Dermal Contact with Groundwater							
C_{gw}	Exposure concentration for groundwater (ug/L)	95% UCL[1]	NA	NA	NA	95% UCL[1]	95% UCL[1]
IR	Ingestion Rate (L/day)	NA	NA	NA	NA	1[5]	2[5]
EF	Exposure Frequency (days/year)	30[9]	NA	NA	NA	350[3]	350[3]
ET/t_{event}	Exposure Time (hours/day)/ Event Duration (hours/event)	4[9]	NA	NA	NA	1[7]	0.58[7]
EV	Event Frequency (events/day)	1[9]	NA	NA	NA	1[2]	1[2]
SA	Skin Surface Available for Contact (cm^2)	3,300[4]	NA	NA	NA	6,600[7]	18,000[7]
	Kp (cm/hour), t* (hour/event), τ (hour), and B (unitless)	chemical-specific[7]	NA	NA	NA	chemical-specific[7]	chemical-specific[7]
Inhalation of Volatile Emissions from Groundwater							
C_{air}	Exposure concentration for air (mg/m^3)	calculated[10]	NA	NA	NA	Calculated[11]	Calculated[11]

TABLE 6-14

SUMMARY OF EXPOSURE INPUT PARAMETERS - REASONABLE MAXIMUM EXPOSURES
SITE 2 - FIRE TRAINING AREA
NWIRP CALVERTON
CALVERTON, NEW YORK

Parameter Code	Exposure Parameter	Construction Worker	Industrial Worker	Child Recreational User	Adult Recreational User	On-Site Child Resident	On-Site Adult Resident
ET	Exposure Time (hours/day)	4(2)	NA	NA	NA	1(7)	0.58(7)
EF	Exposure Frequency (days/year)	30(12)	NA	NA	NA	350(3)	350(3)
VF	Volatilization Factor (L/m^3)	calculated(10)	NA	NA	NA	0.5(11)	0.5(11)

Notes:
1 - USEPA, 2002. Calculating Upper Confidence Limits for Exposure Point Concentrations at Hazardous Waste Sites. OSWER 9285.6-10.
2 - Professional judgment.
3 - USEPA, 1991: Human Health Evaluation Manual, Supplemental Guidance: Standard Default Exposure Factors. OSWER Directive 9285.6-03.
4 - USEPA, 2002: Supplemental Guidance for Developing Soil Screening Levels for Superfund Sites. OSWER 9365.4-24.
5 - USEPA, 1989: Risk Assessment Guidance for Superfund. Vol 1: Human Health Evaluation Manual, Part A.
6 - Assume two days a week in warm weather months for reasonable maximum exposure and one day a week for central tendency exposure.
7 - USEPA, 2004: Risk Assessment Guidance for Superfund (Part E, Supplemental Guidance for Dermal Risk Assessment) Final. PA/540/R/99/005.
8 - NYSDEC, 2006: New York State Brownfields Program, Development of Soil Cleanup Objectives, Technical Support Document.
9 - Professional judgment. Assumes construction workers are only exposed to groundwater water during part of the construction project.
10 - VDEQ May 2012. Virginia Department of Environmental Quality (VDEQ, online - http://www.deq.state.va.us/vrprisk/homepage.html).
11 - USEPA, 1991. Risk Assessment Guidance for Superfund. Vol 1: Human Health Evaluation Manual, Part B, Development of Risk-Based Preliminary Remediation Goals.
12 - Assume one day a week in warm weather months for reasonable maximum exposure and every other week for central tendency exposure.

TABLE 6-15

SUMMARY OF EXPOSURE INPUT PARAMETERS - CENTRAL TENDENCY EXPOSURES
SITE 2 - FIRE TRAINING AREA
NWIRP CALVERTON
CALVERTON, NEW YORK

Parameter Code	Exposure Parameter	Construction Worker	Industrial Worker	Child Recreational User	Adult Recreational User	On-Site Child Resident	On-Site Adult Resident
All Exposures							
C_{soil}	Exposure concentration for soil (mg/kg)	95% UCL[1]	95% UCL[1]	95% UCL[1]	95% UCL[1]	95% UCL[1]	95% UCL[1]
ED	Exposure Duration (years)	1[2]	9[3]	2[3]	7[3]	2[3]	7[3]
BW	Body Weight (kg)	70[4]	70[3]	15[3]	70[3]	15[3]	70[3]
AT-N	Averaging Time (Non-Cancer) (days)	365[5]	3,285[5]	730[5]	2,555[5]	730[5]	2,555[5]
AT-C	Averaging Time (Cancer) (days)	25,550[5]	25,550[5]	25,550[5]	25,550[5]	25,550[5]	25,550[5]
Incidental Ingestion/Dermal Contact with Soil							
IR	Ingestion Rate (mg/day)	165[6]	50[3]	100[3]	50[3]	100[3]	50[3]
EF	Exposure Frequency (days/year)	125[6]	219[3]	26[7]	26[7]	234[3]	234[3]
FI	Fraction Ingested (unitless)	1[4]	1[3]	0.5[2]	0.5[2]	1[3]	1[3]
SA	Skin Surface Available for Contact (cm^2)	3,300[4]	3,300[8]	2,800[8]	5,700[8]	2,800[8]	5,700[8]
AF	Soil to Skin Adherence Factor (mg/cm^2/event)	0.1[8]	0.02[8]	0.04[8]	0.01[8]	0.04[8]	0.01[8]
ABS	Absorption Factor (unitless)	chemical-specific[8]	chemical-specific[8]	chemical-specific[8]	chemical-specific[8]	chemical-specific[8]	chemical-specific[8]
CF	Conversion Factor (kg/mg)	1E-06	1E-06	1E-06	1E-06	1E-06	1E-06
Inhalation Fugitive Dust/Volatile Emissions from Soil							
C_{air}	Exposure concentration for air (mg/m^3)	calculated[4]	calculated[4]	calculated[4]	calculated[4]	calculated[4]	calculated[4]
ET	Exposure Time (hours/day)	8[9]	8[9]	2[6]	2[6]	24[4]	24[4]
EF	Exposure Frequency (days/year)	125[6]	219[3]	26[7]	26[7]	234[3]	234[3]
PEF	Particulate Emission Factor (m^3/kg)	1.4E+06[4]	1.21E+09[10]	1.21E+09[10]	1.21E+09[10]	1.21E+09[10]	1.21E+09[10]
Ingestion/Dermal Contact with Groundwater							
C_{gw}	Exposure concentration for groundwater (ug/L)	95% UCL[1]	NA	NA	NA	95% UCL[1]	95% UCL[1]
IR	Ingestion Rate (L/day)	NA	NA	NA	NA	0.66[11]	1.4[3]
EF	Exposure Frequency (days/year)	15[6]	NA	NA	NA	234[3]	234[3]
ET/t_{event}	Exposure Time (hours/day)/ Event Duration (hours/event)	4[6]	NA	NA	NA	0.33[8]	0.25[8]
EV	Event Frequency (events/day)	1[2]	NA	NA	NA	1[2]	1[2]
SA	Skin Surface Available for Contact (cm^2)	3,300[4]	NA	NA	NA	6,600[8]	18,000[8]
	Kp (cm/hour), t* (hour/event), τ (hour), and B (unitless)	chemical-specific[8]	NA	NA	NA	chemical-specific[8]	chemical-specific[8]
Inhalation of Volatile Emissions from Groundwater							
C_{air}	Exposure concentration for air (mg/m^3)	calculated[12]	NA	NA	NA	Calculated[11]	Calculated[11]
ET	Exposure Time (hours/day)	4[6]	NA	NA	NA	0.33[8]	0.25[8]
EF	Exposure Frequency (days/year)	15[6]	NA	NA	NA	350[3]	350[3]
VF	Volatilization Factor (L/m^3)	calculated[12]	NA	NA	NA	0.5[11]	0.5[11]

TABLE 6-15

SUMMARY OF EXPOSURE INPUT PARAMETERS - CENTRAL TENDENCY EXPOSURES
SITE 2 - FIRE TRAINING AREA
NWIRP CALVERTON
CALVERTON, NEW YORK

Notes:
1 - USEPA, 2002. Calculating Upper Confidence Limits for Exposure Point Concentrations at Hazardous Waste Sites. OSWER 9285.6-10.
2 - Professional judgment.
3 - USEPA, 1993: Superfund's Standard Default Exposure Factors for the Central Tendency and Reasonable Maximum Exposure.
4 - U.S. EPA, 2002: Supplemental Guidance for Developing Soil Screening Levels for Superfund Sites. OSWER 9365.4-24.
5 - USEPA, 1989: Risk Assessment Guidance for Superfund. Vol 1: Human Health Evaluation Manual, Part A.
6 - Central tendency exposure is assumed to be one-half the reasonable maximum exposure value.
7 - Assume 2 days a week in warm weather months for RME and one day a week for CTE.
8 - US EPA, 2004: Risk Assessment Guidance for Superfund (Part E, Supplemental Guidance for Dermal Risk Assessment) Final. PA/540/R/99/005.
9 - Assume an 8-hour work shift.
10 - NYSDEC, 2006: New York State Brownfields Program, Development of Soil Cleanup Objectives, Technical Support Document.
11 - USEPA, 1997: Exposure Factors Handbook. EPA/600/8-95/002FA.
12 - VDEQ May 2012. Virginia Department of Environmental Quality (VDEQ, online - http://www.deq.state.va.us/vrprisk/homepage.html).

TABLE 6 - 16

INTERMEDIATE VARIABLES FOR CALCULATING DA (EVENT)
SITE 2 - FIRE TRAINING AREA
NWIRP CALVERTON
CALVERTON, NEW YORK

Chemical of Potential Concern	Media	Dermal Absorption Fraction (soil)	FA	Kp		T(event)		Tau		T*		B
			Value	Value	Units	Value	Units	Value	Units	Value	Units	Value
Volatile Organic Compounds												
1,4-Dichlorobenzene	Groundwater	0	1	4.20E-02	cm/hr	(1)	hr	7.11E-01	hr	1.71E+00	hr	1.96E-01
Chloroform	Groundwater	0	1	6.83E-03	cm/hr	(1)	hr	4.98E-01	hr	1.19E+00	hr	2.87E-02
cis-1,2-Dichloroethene	Groundwater	0	1	1.09E-02	cm/hr	(1)	hr	3.66E-01	hr	8.80E-01	hr	4.12E-02
Ethylbenzene	Groundwater	0	1	4.93E-02	cm/hr	(1)	hr	4.20E-01	hr	1.01E+00	hr	1.95E-01
m+p-Xylene	Groundwater	0	1	5.32E-02	cm/hr	(1)	hr	4.20E-01	hr	1.01E+00	hr	2.11E-01
o-Xylene	Groundwater	0	1	4.62E-02	cm/hr	(1)	hr	4.13E-01	hr	9.91E-01	hr	1.83E-01
Trichloroethene	Groundwater	0	1	1.16E-02	cm/hr	(1)	hr	5.81E-01	hr	1.39E+00	hr	5.13E-02
Vinyl Chloride	Groundwater	0	1	5.60E-03	cm/hr	(1)	hr	2.39E-01	hr	5.73E-01	hr	1.70E-02
Semivolatile Organic Compounds												
Benzo(a)anthracene	Soil	0.13	NA(2)	NA(2)	cm/hr	(1)	hr	NA(2)	hr	NA(2)	hr	NA(2)
Benzo(a)pyrene	Soil	0.13	NA(2)	NA(2)	cm/hr	(1)	hr	NA(2)	hr	NA(2)	hr	NA(2)
Benzo(b)fluoranthene	Soil	0.13	NA(2)	NA(2)	cm/hr	(1)	hr	NA(2)	hr	NA(2)	hr	NA(2)
Dibenzo(a,h)anthracene	Soil	0.13	NA(2)	NA(2)	cm/hr	(1)	hr	NA(2)	hr	NA(2)	hr	NA(2)
Indeno(1,2,3-cd)pyrene	Soil	0.13	NA(2)	NA(2)	cm/hr	(1)	hr	NA(2)	hr	NA(2)	hr	NA(2)

Notes:
All values from Environmental Protection Agency's (EPA's) Risk Assessment Guidance for Superfund (RAGs)Volume 1: Human Health Evaluation Manual (Part E, Supplemental Guidance for Dermal Risk Assessment). Final, July 2004.
1 - See Tables 6-13 and 6-14 for values for T(event).
2 - RAGS Part E recommends not attempting to quantify risk because contaminants are outside the effective predictive domain of the model.

cm/hr = centimeters per hour
DA(event) = Absorbed Dose per Event
FA = Fraction Absorbed Water
hr = hour
Kp = Dermal Permeability Coefficient of Compound in Water
NA = Not Applicable
T(event) = Event Duration
Tau = Lag Time
T* = Time to Reach Steady-State
B = Dimensionless Ratio of the Permeability Coefficient of a Compound Through the Stratum Corneum Relative to its Permeability Coefficient Across the Viable Epidermis

TABLE 6 - 17

CHEMICAL PROPERTIES FOR
VOLATILIZATION FROM GROUNDWATER TO OUTDOOR AIR MODELS
SITE 2 - FIRE TRAINING AREA
NWIRP CALVERTON
CALVERTON, NEW YORK

Chemical	Molecular Weight (g/mole)	Henry's Law Constant (atm-m^3/mol)
1,4-Dichlorobenzene	1.47E+02	2.41E-03
Chloroform	1.19E+02	3.67E-03
cis-1,2-Dichloroethene	9.69E+01	4.08E-03
Ethylbenzene	1.06E+02	7.88E-03
m+p-Xylenes	1.06E+02	7.18E-03
o-Xylene	1.06E+02	5.18E-03
Tetrachloroethene	1.66E+02	1.77E-02
Trichloroethene	1.31E+02	9.85E-03
Vinyl Chloride	6.25E+01	2.78E-02

Notes:

Source:
United States Environmental Protection Agency (USEPA) 2012: USEPA Regional Screening Levels for Chemical Contaminants at Superfund Sites, May.
atm-m^3/mole = atmosopheres times cubic meters per mole
g/mole = grams per mole

TABLE 6 - 18

NON-CANCER TOXICITY DATA - ORAL/DERMAL
SITE 2 - FIRE TRAINING AREA
NWIRP CALVERTON
CALVERTON, NEW YORK

Chemical of Potential Concern	Chronic/ Subchronic	Oral RfD		Oral Absorption Efficiency for Dermal[1]	Absorbed RfD for Dermal[2]		Primary Target Organ(s)	Combined Uncertainty/Modifying Factors	RfD:Target Organ(s)	
		Value	Units		Value	Units			Source(s)	Date(s)
Volatile Organic Compounds										
1,4-Dichlorobenzene	Subchronic	7.0E-02	mg/kg/day	1	7.0E-02	mg/kg/day	Liver	100/1	ATSDR	7/2006
	Chronic	7.0E-02	mg/kg/day	1	7.0E-02	mg/kg/day	Liver	100/1	ATSDR	7/2006
Chloroform	Subchronic	1.0E-01	mg/kg/day	1	1.0E-01	mg/kg/day	Liver	100/1	ATSDR	9/1997
	Chronic	1.0E-02	mg/kg/day	1	1.0E-02	mg/kg/day	Liver	100/1	IRIS	5/25/2012
cis-1,2-Dichloroethene	Subchronic	2.0E-02	mg/kg/day	1	2.0E-02	mg/kg/day	Kidney	300/1	PPRTV	2/3/2011
	Chronic	2.0E-03	mg/kg/day	1	2.0E-03	mg/kg/day	Kidney	3000/1	IRIS	5/25/2012
Ethylbenzene	Subchronic	5.0E-02	mg/kg/day	1	5.0E-02	mg/kg/day	Liver	1000/1	PPRTV	9/9/2010
	Chronic	1.0E-01	mg/kg/day	1	1.0E-01	mg/kg/day	Liver, Kidney	1000/1	IRIS	5/25/2012
Tetrachloroethene	Subchronic	1.0E-01	mg/kg/day	1	1.0E-01	mg/kg/day	Liver	100/1	HEAST	7/1997
	Chronic	6.0E-03	mg/kg/day	1	6.0E-03	mg/kg/day	Neurotoxicity	1000/1	IRIS	5/25/2012
Trichloroethene	Chronic	5.0E-04	mg/kg/day	1	5.0E-04	mg/kg/day	Immune System, Developmental	1000/1	IRIS	5/25/2012
Vinyl Chloride	Chronic	3.0E-03	mg/kg/day	1	3.0E-03	mg/kg/day	Liver	30/1	IRIS	5/25/2012
m+p-Xylene[3]	Subchronic	4.0E-01	mg/kg/day	1	4.0E-01	mg/kg/day	Body Weight	1000/1	PPRTV	9/30/2009
	Chronic	2.0E-01	mg/kg/day	1	2.0E-01	mg/kg/day	Body Weight	1000/1	IRIS	5/25/2012
o-Xylene[3]	Subchronic	4.0E-01	mg/kg/day	1	4.0E-01	mg/kg/day	Body Weight	1000/1	PPRTV	9/30/2009
	Chronic	2.0E-01	mg/kg/day	1	2.0E-01	mg/kg/day	Body Weight	1000/1	IRIS	5/25/2012
Semivolatile Organic Compounds										
Benzo(a)anthracene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenzo(a,h)anthracene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Inorganics										
Arsenic	Chronic	3.0E-04	mg/kg/day	1	3.0E-04	mg/kg/day	Skin, Cardiovascular System	3/1	IRIS	5/25/2012

Notes:

1 - U.S. EPA, 2004: Risk Assessment Guidance for Superfund (Part E, Supplemental Guidance for Dermal Risk Assessment) Interim. EPA/540/R/99/005.

2 - Adjusted dermal RfD = Oral RfD x Oral Absorption Efficiency for Dermal.

3 - Xylene is used as a surrogate for m+p-xylene and o-xylene.

ATSDR = Agency for Toxic Substances and Disease Registry.

HEAST = Health Effects Assessment Summary Tables

IRIS = Integrated Risk Information System

mg/kg/day = milligram per kilogram per day

NA = Not Available.

Rfd = Reference dose

PPRTV = Provisional Peer Reviewed Toxicity Value.

USEPA = United States Environmental Protection Agency

TABLE 6 - 19

NON-CANCER TOXICITY DATA - INHALATION
SITE 2 - FIRE TRAINING AREA
NWIRP CALVERTON
CALVERTON, NEW YORK

Chemical of Potential Concern	Chronic/ Subchronic	Inhalation RfC		Extrapolated RfD[1]		Primary Target Organ(s)	Combined Uncertainty/Modifying Factors	RfC : Target Organ(s)	
		Value	Units	Value	Units			Source(s)	Date(s)
Volatile Organic Compounds									
1,4-Dichlorobenzene	Subchronic	1.2E+00	mg/m3	3.4E-01	(mg/kg/day)	Liver	100/1	ATSDR	7/2006
	Chronic	8.0E-01	mg/m3	2.3E-01	(mg/kg/day)	Liver	100/1	IRIS	5/25/2012
Chloroform	Subchronic	2.4E-01	mg/m3	6.9E-02	(mg/kg/day)	Liver	300/1	ATSDR	9/1997
	Chronic	9.8E-02	mg/m3	2.8E-02	(mg/kg/day)	Liver	100/1	ATSDR	9/1997
cis-1,2-Dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethylbenzene	Subchronic	9.0E+00	mg/m3	2.6E+00	(mg/kg/day)	Ear	100/1	PPRTV	9/9/2010
	Chronic	1.0E+00	mg/m3	2.9E-01	(mg/kg/day)	Developmental	300/1	IRIS	5/25/2012
Tetrachloroethene	Chronic	4.0E-02	mg/m3	1.1E-02	(mg/kg/day)	Neurotoxicity	300/1	IRIS	5/25/2012
Trichloroethene	Subchronic	5.4E-01	mg/m3	1.5E-01	(mg/kg/day)	Central Nervous System	300/1	ATSDR	9/1997
	Chronic	2.0E-03	mg/m3	5.7E-04	(mg/kg/day)	Immune System, Developmental	100/1	IRIS	5/25/2012
Vinyl Chloride	Subchronic	7.7E-02	mg/m3	2.2E-02	(mg/kg/day)	Liver	30/1	ATSDR	7/2006
	Chronic	1.0E-01	mg/m3	2.9E-02	(mg/kg/day)	Liver	30/1	IRIS	5/25/2012
m+p-Xylene[3]	Subchronic	4.0E-01	mg/m3	1.1E-01	(mg/kg/day)	Central Nervous System	100/1	PPRTV	9/30/2009
	Chronic	1.0E-01	mg/m3	2.9E-02	(mg/kg/day)	Central Nervous System	300/1	IRIS	5/25/2012
o-Xylene[3]	Subchronic	4.0E-01	mg/m3	1.1E-01	(mg/kg/day)	Central Nervous System	100/1	PPRTV	9/30/2009
	Chronic	1.0E-01	mg/m3	2.9E-02	(mg/kg/day)	Central Nervous System	300/1	IRIS	5/25/2012
Semivolatile Organic Compounds									
Benzo(a)anthracene	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenzo(a,h)anthracene	NA	NA	NA	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	NA	NA	NA	NA	NA	NA	NA	NA	NA
Inorganics									
Arsenic	Chronic	1.5E-05	mg/m3	4.3E-06	(mg/kg/day)	Skin, Cardiovascular System	NA	Cal EPA	9/2009

Notes:

1 - Extrapolated RfD = RfC *20m^3/day / 70 kg

2 - Xylenes is used as a surrogate for m+p-xylene and o-xylene.

Definitions:

ATSDR = Agency for Toxic Substances and Disease Registry.

Cal EPA = California Environmental Protection Agency, Technical Support Document for Describing Available Cancer Slope Factors, September 2009.

IRIS = Integrated Risk Information System

mg/kg/day = milligram per kilogram per day

mg/m^3 = milligrams per meter cubed

NA = Not Available.

PPRTV = Provisional Peer Reviewed Toxicity Value.

TABLE 6 - 20

CANCER TOXICITY DATA - ORAL/DERMAL
SITE 2 - FIRE TRAINING AREA
NWIRP CALVERTON
CALVERTON, NEW YORK

Chemical of Potential Concern	Oral Cancer Slope Factor		Oral Absorption Efficiency for Dermal[1]	Absorbed Cancer Slope Factor for Dermal[2]		Weight of Evidence/ Cancer Guideline Description	Oral Cancer Slope Factor	
	Value	Units		Value	Units		Source(s)	Date(s)
Volatile Organic Compounds								
1,4-Dichlorobenzene	5.4E-03	$(mg/kg/day)^{-1}$	1	5.4E-03	$(mg/kg/day)^{-1}$	Not Assessed under the IRIS Program	Cal EPA	9/2009
Chloroform	3.1E-02	$(mg/kg/day)^{-1}$	1	3.1E-02	$(mg/kg/day)^{-1}$	Likely to be carcinogenic to humans	Cal EPA	9/2009
cis-1,2-Dichloroethene	NA	NA	NA	NA	NA	Inadequate information to assess carcinogenic potential	IRIS	5/25/2012
Ethylbenzene	1.1E-02	$(mg/kg/day)^{-1}$	1	1.1E-02	$(mg/kg/day)^{-1}$	D (Not classifiable as to human carcinogenicity)	Cal EPA	9/2009
Tetrachloroethene	2.1E-03	$(mg/kg/day)^{-1}$	1	2.1E-03	$(mg/kg/day)^{-1}$	Likely to be carcinogenic to humans	IRIS	5/25/2012
Trichloroethene - non-mutagen[3]	3.7E-02	$(mg/kg/day)^{-1}$	1	3.7E-02	$(mg/kg/day)^{-1}$	Carcinogenic to humans	IRIS	5/25/2012
Trichloroethene - mutagen[3,4]	9.3E-03	$(mg/kg/day)^{-1}$	1	9.3E-03	$(mg/kg/day)^{-1}$	Carcinogenic to humans	IRIS	5/25/2012
Vinyl Chloride	7.2E-01	$(mg/kg/day)^{-1}$	1	7.2E-01	$(mg/kg/day)^{-1}$	Known/likely human carcinogen	IRIS	5/25/2012
m+p-Xylene	NA	NA	NA	NA	NA	Data are inadequate for an assessment of human carcinogenic potential	IRIS	5/25/2012
o-Xylene	NA	NA	NA	NA	NA	Data are inadequate for an assessment of human carcinogenic potential	IRIS	5/25/2012
Semivolatile Organic Compounds								
Benzo(a)anthracene[4]	7.3E-01	$(mg/kg/day)^{-1}$	1	7.3E-01	$(mg/kg/day)^{-1}$	B2 / Probable human carcinogen	USEPA(1)	7/1993
Benzo(a)pyrene[4]	7.3E+00	$(mg/kg/day)^{-1}$	1	7.3E+00	$(mg/kg/day)^{-1}$	B2 / Probable human carcinogen	IRIS	5/25/2012
Benzo(b)fluoranthene[4]	7.3E-01	$(mg/kg/day)^{-1}$	1	7.3E-01	$(mg/kg/day)^{-1}$	B2 / Probable human carcinogen	USEPA(1)	7/1993
Dibenzo(a,h)anthracene[4]	7.3E+00	$(mg/kg/day)^{-1}$	1	7.3E+00	$(mg/kg/day)^{-1}$	B2 / Probable human carcinogen	USEPA(1)	7/1993
Indeno(1,2,3-cd)pyrene[4]	7.3E-01	$(mg/kg/day)^{-1}$	1	7.3E-01	$(mg/kg/day)^{-1}$	B2 / Probable human carcinogen	USEPA(1)	7/1993
Inorganics								
Arsenic	1.5E+00	$(mg/kg/day)^{-1}$	1	1.5E+00	$(mg/kg/day)^{-1}$	A / human carcinogen	IRIS	5/25/2012

Notes:

1 - United States Environmental Preotection Agency (USEPA), 2004: Risk Assessment Guidance for Superfund (Part E, Supplemental Guidance for Dermal Risk Assessment) Interim. EPA/540/R/99/005.

2 - Adjusted cancer slope factor for dermal = Oral cancer slope factor / Oral absorption efficiency for dermal.

3 - See text for a discussion of trichloroethene toxicity.

4 - Trichloroethene and carcinogenic PAHs are considered to act via the mutagenic mode of action. These chemicals are evaluated in accordance with USEPA's Supplemental Guidance for Assessing Susceptibility from Early-Life Exposure to Carcinogens (2005).

Cal EPA = California Environmental Protection Agency, Technical Support Document for Describing Available Cancer Slope Factors, September 2009.

IRIS = Integrated Risk Information System.

mg/kg/day = milligram per kilogram per day

NA = Not Available.

USEPA(1) = USEPA Provisional Guidance for Quantitative Risk Assessment of Polycyclic Aromatic Hydrocarbons, July 1993, EPA/600/R-93/089.

TABLE 6-21

CANCER TOXICITY DATA - INHALATION
SITE 2 - FIRE TRAINING AREA
NWIRP CALVERTON
CALVERTON, NEW YORK

Chemical of Potential Concern	Unit Risk		Inhalation Cancer Slope Factor[1]		Weight of Evidence/ Cancer Guideline Description	Unit Risk : Inhalation Cancer Slope Factor	
	Value	Units	Value	Units		Source(s)	Date(s)
Volatile Organic Compounds							
1,4-Dichlorobenzene	1.1E-05	$(ug/m^3)^{-1}$	3.9E-02	$(mg/kg/day)^{-1}$	Not Assessed under the IRIS Program	Cal EPA	9/2009
Chloroform	2.3E-05	$(ug/m^3)^{-1}$	8.1E-02	$(mg/kg/day)^{-1}$	Likely to be carcinogenic to humans	IRIS	5/25/2012
cis-1,2-Dichloroethene	NA	NA	NA	NA	Inadequate information to assess carcinogenic potential	IRIS	5/25/2012
Ethylbenzene	2.5E-06	$(ug/m^3)^{-1}$	8.8E-03	$(mg/kg/day)^{-1}$	D (Not classifiable as to human carcinogenicity)	Cal EPA	9/2009
Tetrachloroethene	2.6E-07	$(ug/m^3)^{-1}$	9.1E-04	$(mg/kg/day)^{-1}$	Likely to be carcinogenic to humans	IRIS	5/25/2012
Trichloroethene - non-mutagen[2]	3.1E-06	$(ug/m^3)^{-1}$	1.1E-02	$(mg/kg/day)^{-1}$	Carcinogenic to humans	IRIS	5/25/2012
Trichloroethene - mutagen[2,3]	1.0E-06	$(ug/m^3)^{-1}$	3.5E-03	$(mg/kg/day)^{-1}$	Carcinogenic to humans	IRIS	5/25/2012
Vinyl Chloride	4.4E-06	$(ug/m^3)^{-1}$	1.5E-02	$(mg/kg/day)^{-1}$	Known/likely human carcinogen	IRIS	5/25/2012
m+p-Xylene	NA	NA	NA	NA	Data are inadequate for an assessment of human carcinogenic potential	IRIS	5/25/2012
o-Xylene	NA	NA	NA	NA	Data are inadequate for an assessment of human carcinogenic potential	IRIS	5/25/2012
Semivolatile Organic Compounds							
Benzo(a)anthracene[3]	1.1E-04	$(ug/m^3)^{-1}$	3.9E-01	$(mg/kg/day)^{-1}$	NA	Cal EPA	9/2009
Benzo(a)pyrene[3]	1.1E-03	$(ug/m^3)^{-1}$	3.9E+00	$(mg/kg/day)^{-1}$	NA	Cal EPA	9/2009
Benzo(b)fluoranthene[3]	1.1E-04	$(ug/m^3)^{-1}$	3.9E-01	$(mg/kg/day)^{-1}$	NA	Cal EPA	9/2009
Dibenzo(a,h)anthracene[3]	1.2E-03	$(ug/m^3)^{-1}$	4.2E+00	$(mg/kg/day)^{-1}$	NA	Cal EPA	9/2009
Indeno(1,2,3-cd)pyrene[3]	1.1E-04	$(ug/m^3)^{-1}$	3.9E-01	$(mg/kg/day)^{-1}$	NA	Cal EPA	9/2009
Inorganics							
Arsenic	4.3E-03	$(ug/m^3)^{-1}$	1.5E+01	$(mg/kg/day)^{-1}$	A / Known human carcinogen	IRIS	5/25/2012

Notes:

1 - Inhalation Cancer Slope Factor = Unit Risk * 70 kg / $20m^3$/day.

2 - See text for a discussion of trichloroethene toxicity.

3 - Trichloroethene and carcinogenic Polyaromatic Hydrocarbons (PAHs) are considered to act via the mutagenic mode of action. These chemicals are evaluated in accordance with United States Environmental Protection Agency's (USEPA's) Supplemental Guidance for Assessing Susceptibility from Early-Life Exposure to Carcinogens (2005).

IRIS = Integrated Risk Information System.

mg/kg/day = milligram per kilogram per day

NA = Not Available.

$\mu g/m^3$ = microgram per meter cubed

Cal EPA = California Environmental Protection Agency, Technical Support Document for Describing Available Cancer Slope Factors, September 2009.

TABLE 6 - 22

SUMMARY OF CANCER RISKS AND HAZARD INDICES - REASONABLE MAXIMUM EXPOSURES
SITE 2 - FIRE TRAINING AREA
NWIRP CALVERTON
CALVERTON, NEW YORK

Receptor	Media	Exposure Route	Cancer Risk	Chemicals with Cancer Risks > 10^{-4}	Chemicals with Cancer Risks > 10^{-5} and ≤ 10^{-4}	Chemicals with Cancer Risks > 10^{-6} and ≤ 10^{-5}	Hazard Index	Chemicals Contributing to an Target Organ HI > 1
Construction Workers	Surface/Subsurface Soil	Incidental Ingestion	7E-08	--	--	--	--	--
		Dermal Contact	3E-08	--	--	--	--	--
		Inhalation	5E-10	--	--	--	--	--
		Total	9E-08	--	--	--	--	--
	Groundwater	Dermal Contact	3E-09	--	--	--	0.001	--
		Inhalation	4E-10	--	--	--	0.00005	--
		Total	3E-09	--	--	--	0.001	--
	Total Surface/Subsurface Soil and Groundwater		1E-07				0.001	
Industrial Workers	Surface/Subsurface Soil	Incidental Ingestion	5E-07	--	--	--	--	--
		Dermal Contact	4E-07	--	--	--	--	--
		Inhalation	2E-11	--	--	--	--	--
		Total	1E-06	--	--	--	--	--
Child Recreational Users	Surface/Subsurface Soil	Incidental Ingestion	6E-07	--	--	--	--	--
		Dermal Contact	5E-07	--	--	--	--	--
		Inhalation	2E-12	--	--	--	--	--
		Total	1E-06	--	--	--	--	--
Adult Recreational Users	Surface/Subsurface Soil	Incidental Ingestion	9E-08	--	--	--	--	--
		Dermal Contact	1E-07	--	--	--	--	--
		Inhalation	3E-12	--	--	--	--	--
		Total	2E-07	--	--	--	--	--
Lifelong (Child and Adult)	Surface/Subsurface Soil	Incidental Ingestion	7E-07	--	--	--	NA	--
		Dermal Contact	6E-07	--	--	--	NA	--
		Inhalation	5E-12	--	--	--	NA	--
		Total	1E-06	--	--	--	NA	--
Child Residents	Surface/Subsurface Soil	Incidental Ingestion	9E-06	--	--	Benzo(a)pyrene	--	--
		Dermal Contact	3E-06	--	--	Benzo(a)pyrene	--	--
		Inhalation	8E-11	--	--	--	--	--
		Total	1E-05	--	--	Benzo(a)pyrene, Dibenzo(a,h)anthracene	--	--
	Groundwater	Incidental Ingestion	9E-05	--	Vinyl Chloride	--	0.3	--
		Dermal Contact	5E-06	--	--	Vinyl Chloride	0.05	--
		Inhalation	7E-06	--	--	Vinyl Chloride	0.5	--
		Total	1E-04	--	Vinyl Chloride	--	0.9	--
	Total Surface/Subsurface Soil and Groundwater		1E-04				0.9	

TABLE 6 - 22

SUMMARY OF CANCER RISKS AND HAZARD INDICES - REASONABLE MAXIMUM EXPOSURES
SITE 2 - FIRE TRAINING AREA
NWIRP CALVERTON
CALVERTON, NEW YORK

Receptor	Media	Exposure Route	Cancer Risk	Chemicals with Cancer Risks > 10^{-4}	Chemicals with Cancer Risks > 10^{-5} and ≤ 10^{-4}	Chemicals with Cancer Risks > 10^{-6} and ≤ 10^{-5}	Hazard Index	Chemicals Contributing to an Target Organ HI > 1
Adult Residents	Surface/Subsurface Soil	Incidental Ingestion	1E-06	--	--	--	--	--
		Dermal Contact	7E-07	--	--	--	--	--
		Inhalation	1E-10	--	--	--	--	--
		Total	2E-06	--	--	--	--	--
	Groundwater	Incidental Ingestion	1E-05	--	--	Vinyl Chloride	0.1	--
		Dermal Contact	1E-06	--	--	--	0.02	--
		Inhalation	9E-06	--	--	1,4-Dichlorobenzene, Chloroform, Ethylbenzene, Trichloroethene	0.5	--
		Total	2E-05	--	--	1,4-Dichlorobenzene, Chloroform, Ethylbenzene, Trichloroethene, Vinyl Chloride	0.7	--
	Total Surface/Subsurface Soil and Groundwater		3E-05				0.7	
Lifelong (Child and Adult)	Surface/Subsurface Soil	Incidental Ingestion	1E-05	--	--	Benzo(a)pyrene	NA	--
		Dermal Contact	4E-06	--	--	Benzo(a)pyrene	NA	--
		Inhalation	2E-10	--	--	--	NA	--
		Total	1E-05	--	--	Benzo(a)anthracene, Benzo(a)pyrene, Dibenzo(a,h)anthracene	NA	--
	Groundwater	Incidental Ingestion	1E-04	--	Vinyl Chloride	Trichloroethene	NA	--
		Dermal Contact	7E-06	--	--	Vinyl Chloride	NA	--
		Inhalation	2E-05	--	--	1,4-Dichlorobenzene, Chloroform, Ethylbenzene, Trichloroethene, Vinyl Chloride	NA	--
		Total	1E-04	--	Vinyl Chloride	1,4-Dichlorobenzene, Chloroform, Ethylbenzene, Trichloroethene	NA	--
	Total Surface/Subsurface Soil and Groundwater		1E-04					

Notes:
HI = Hazard Index
NA = Not Applicable
> = More than
≤ = Less than or equal to
-- = None

TABLE 6 - 23

SUMMARY OF CANCER RISKS AND HAZARD INDICES - CENTRAL TENDENCY EXPOSURES
SITE 2 - FIRE TRAINING AREA
NWIRP CALVERTON
CALVERTON, NEW YORK

Receptor	Media	Exposure Route	Cancer Risk	Chemicals with Cancer Risks > 10^{-4}	Chemicals with Cancer Risks > 10^{-5} and ≤ 10^{-4}	Chemicals with Cancer Risks > 10^{-6} and ≤ 10^{-5}	Hazard Index	Chemicals Contributing to an Target Organ HI > 1
Construction Workers	Surface/Subsurface Soil	Incidental Ingestion	2E-08	--	--	--	--	--
		Dermal Contact	4E-09	--	--	--	--	--
		Inhalation	3E-10	--	--	--	--	--
		Total	2E-08	--	--	--	--	--
	Groundwater	Dermal Contact	2E-09	--	--	--	0.0006	--
		Inhalation	9E-11	--	--	--	0.00001	--
		Total	2E-09	--	--	--	0.0006	--
	Total Surface/Subsurface Soil and Groundwater		2E-08				0.0006	
Industrial Workers	Surface/Subsurface Soil	Incidental Ingestion	8E-08	--	--	--	--	--
		Dermal Contact	1E-08	--	--	--	--	--
		Inhalation	5E-12	--	--	--	--	--
		Total	9E-08	--	--	--	--	--
Child Recreational Users	Surface/Subsurface Soil	Incidental Ingestion	6E-08	--	--	--	--	--
		Dermal Contact	2E-08	--	--	--	--	--
		Inhalation	2E-10	--	--	--	--	--
		Total	8E-08	--	--	--	--	--
Adult Recreational Users	Surface/Subsurface Soil	Incidental Ingestion	6E-09	--	--	--	--	--
		Dermal Contact	2E-09	--	--	--	--	--
		Inhalation	2E-13	--	--	--	--	--
		Total	8E-09	--	--	--	--	--
Lifelong (Child and Adult)	Surface/Subsurface Soil	Incidental Ingestion	7E-08	--	--	--	NA	--
		Dermal Contact	2E-08	--	--	--	NA	--
		Inhalation	2E-10	--	--	--	NA	--
		Total	9E-08	--	--	--	NA	--
Child Residents	Surface/Subsurface Soil	Incidental Ingestion	1E-06	--	--	--	--	--
		Dermal Contact	2E-07	--	--	--	--	--
		Inhalation	2E-11	--	--	--	--	--
		Total	1E-06	--	--	--	--	--
	Groundwater	Incidental Ingestion	6E-05	--	Vinyl Chloride	--	0.1	--
		Dermal Contact	3E-06	--	--	Vinyl Chloride	0.02	--
		Inhalation	5E-06	--	--	Vinyl Chloride	0.3	--
		Total	7E-05	--	Vinyl Chloride	--	0.5	--
	Total Surface/Subsurface Soil and Groundwater		7E-05				0.5	
Adult Residents	Surface/Subsurface Soil	Incidental Ingestion	1E-07	--	--	--	--	--
		Dermal Contact	2E-08	--	--	--	--	--
		Inhalation	2E-11	--	--	--	--	--
		Total	1E-07	--	--	--	--	--
	Groundwater	Incidental Ingestion	2E-06	--	--	Vinyl Chloride	0.07	--
		Dermal Contact	1E-07	--	--	--	0.01	--
		Inhalation	2E-06	--	--	--	0.3	--
		Total	4E-06	--	--	Vinyl Chloride	0.4	--
	Total Surface/Subsurface Soil and Groundwater		4E-06				0.4	

TABLE 6 - 23

SUMMARY OF CANCER RISKS AND HAZARD INDICES - CENTRAL TENDENCY EXPOSURES
SITE 2 - FIRE TRAINING AREA
NWIRP CALVERTON
CALVERTON, NEW YORK

Receptor	Media	Exposure Route	Cancer Risk	Chemicals with Cancer Risks $> 10^{-4}$	Chemicals with Cancer Risks $> 10^{-5}$ and $\leq 10^{-4}$	Chemicals with Cancer Risks $> 10^{-6}$ and $\leq 10^{-5}$	Hazard Index	Chemicals Contributing to an Target Organ HI > 1
Lifelong (Child and Adult)	Surface/Subsurface Soil	Incidental Ingestion	1E-06	--	--	--	NA	--
		Dermal Contact	2E-07	--	--	--	NA	--
		Inhalation	4E-11	--	--	--	NA	--
		Total	1E-06	--	--	--	NA	--
	Groundwater	Incidental Ingestion	6E-05	--	Vinyl Chloride	--	NA	--
		Dermal Contact	3E-06	--	--	Vinyl Chloride	NA	--
		Inhalation	6E-06	--	--	Vinyl Chloride	NA	--
		Total	7E-05	--	Vinyl Chloride	--	NA	--
	Total Surface/Subsurface Soil and Groundwater		7E-05					

Notes:
HI = Hazard Index
NA = Not Applicable
> = More than
≤ = Less than or equal to

TABLE 6 - 24

SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs - VAPOR INTRUSION - RESIDENTIAL EXPOSURES
SITE 2 - FIRE TRAINING AREA
NWIRP CALVERTON
CALVERTON, NEW YORK

Chemical	Incremental Lifetime Carcinogenic Risk (ILCR)			Estimated Non-Carcinogenic Hazard Quotient (HQ)		
	Maximum Detected Concentration (ug/L)	Screening Criteria[1] (ug/L)	Estimated ILCR	Target Organs	Screening Criteria[1] (ug/L)	Estimated HQ
Chloroform	0.79	0.71	1E-06	Liver	680	0.001
Ethylbenzene	4.8	3	2E-06	Developmental	3200	0.002
Tetrachloroethylene	0.91	0.57	2E-06	Neurotoxicity	390	0.002
Trichloroethylene	12	1.1	1E-05	Immune System, Developmental	5.2	2
Vinyl Chloride	1.8	0.14	1E-05	Liver	92	0.02
		Total ILCR	3E-05		Total HI	2

Notes:
1 - United States Environmental Proteciton Agency (USEPA) Vapor Intrusion Screening Level (VISL) Calculator, Version 1.0. November 2011 Risk Screening Levels (RSLs). Values correspond to a target cancer risk level of 1E-6 or HI = 1 and an attenuation factor of 0.001.
COPCs = Contaminants of Potential Concern
HI = Hazard Index
µg/L = micrograms per Liter

TABLE 6 - 25

SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs - VAPOR INTRUSION - INDUSTRIAL EXPOSURES
SITE 2 - FIRE TRAINING AREA
NWIRP CALVERTON
CALVERTON, NEW YORK

Chemical	Incremental Lifetime Carcinogenic Risk (ILCR)			Estimated Non-Carcinogenic Hazard Quotient (HQ)		
	Maximum Detected Concentration (ug/L)	Screening Criteria[1] (ug/L)	Estimated ILCR	Target Organs	Screening Criteria[1] (ug/L)	Estimated HQ
Chloroform	0.79	3.6	2E-07	Liver	2,900	0.0003
Ethylbenzene	4.8	15	3E-07	Developmental	14,000	0.0003
Tetrachloroethylene	0.91	2.9	3E-07	Neurotoxicity	1,600	0.0006
Trichloroethylene	12	7.4	2E-06	Immune System, Developmental	22	0.5
Vinyl Chloride	1.8	2.5	7E-07	Liver	390	0.005
		Total ILCR	3E-06		Total HI	0.6

Notes:
1 - United States Environmental Proteciton Agency (USEPA) Vapor Intrusion Screening Level (VISL) Calculator, Version 1.0. November 2011 Risk Screening Levels (RSLs). Values correspond to a target cancer risk level of 1E-6 or HI = 1 and an attenuation factor of 0.001.
COPCs = Contaminants of Potential Concern
HI = Hazard Index
µg/L = micrograms per Liter

TABLE 6 - 26

RISK ASSOCIATED WITH NATURALLY OCCURRING CHEMICALS
SITE 2 - FIRE TRAINING AREA
NWIRP CALVERTON
CALVERTON, NEW YORK

Receptor	Reasonable Maximum Exposures	
	ILCR	HI
CURRENT/FUTURE CONSTRUCTION WORKERS		
Surface/Subsurface Soil		
Site Risk[1]	9E-08	NC
Background Risk[2]	1E-07	0.03
Site + Background Risk[3]	2E-07	0.03
Groundwater	3E-09	0.001
Site Totals		
Total Surface/Subsurface Soil and Groundwater	9E-08	0.001
Site and Background Totals		
Total Surface/Subsurface Soil and Groundwater	2E-07	0.03

CURRENT/FUTURE INDUSTRIAL WORKERS		
Surface/Subsurface Soil		
Site Risk	1E-06	NC
Background Risk	8E-07	0.005
Site + Background Risk	2E-06	0.005

FUTURE CHILD RECREATIONAL USERS		
Surface/Subsurface Soil		
Site Risk	1E-06	NC
Background Risk	2E-07	0.005
Site + Background Risk	1E-06	0.005

FUTURE ADULT RECREATIONAL USERS		
Surface/Subsurface Soil		
Site Risk	2E-07	NC
Background Risk	8E-08	0.0005
Site + Background Risk	3E-07	0.0005

FUTURE LIFELONG RECREATIONAL USERS		
Surface/Subsurface Soil		
Site Risk	1E-06	NA
Background Risk	3E-07	NA
Site + Background Risk	1E-06	NA

TABLE 6 - 26

RISK ASSOCIATED WITH NATURALLY OCCURRING CHEMICALS
SITE 2 - FIRE TRAINING AREA
NWIRP CALVERTON
CALVERTON, NEW YORK

Receptor	Reasonable Maximum Exposures	
	ILCR	HI
HYPOTHETICAL CHILD RESIDENTS		
Surface/Subsurface Soil		
Site Risk	1E-05	NC
Background Risk	2E-06	0.06
Site + Background Risk	1E-05	0.06
Groundwater - Direct Contact	1E-04	0.9
Site Totals		
Total Surface/Subsurface Soil and Groundwater	1E-04	0.9
Site and Background Totals		
Total Surface/Subsurface Soil and Groundwater	1E-04	1.0

HYPOTHETICAL ADULT RESIDENTS		
Surface/Subsurface Soil		
Site Risk	2E-06	NC
Background Risk	1E-06	0.006
Site + Background Risk	3E-06	0.006
Groundwater - Direct Contact	2E-05	0.7
Site Totals		
Total Surface/Subsurface Soil and Groundwater	2E-05	0.7
Site and Background Totals		
Total Surface/Subsurface Soil and Groundwater	2E-05	0.7

HYPOTHETICAL LIFELONG RESIDENTS		
Surface/Subsurface Soil		
Site Risk	1E-05	NA
Background Risk	3E-06	NA
Site + Background Risk	1E-05	NA
Groundwater - Direct Contact	1E-04	NA
Site Totals		
Total Surface/Subsurface Soil and Groundwater	1E-04	NA
Site and Background Totals		
Total Surface/Subsurface Soil and Groundwater	1E-04	NA

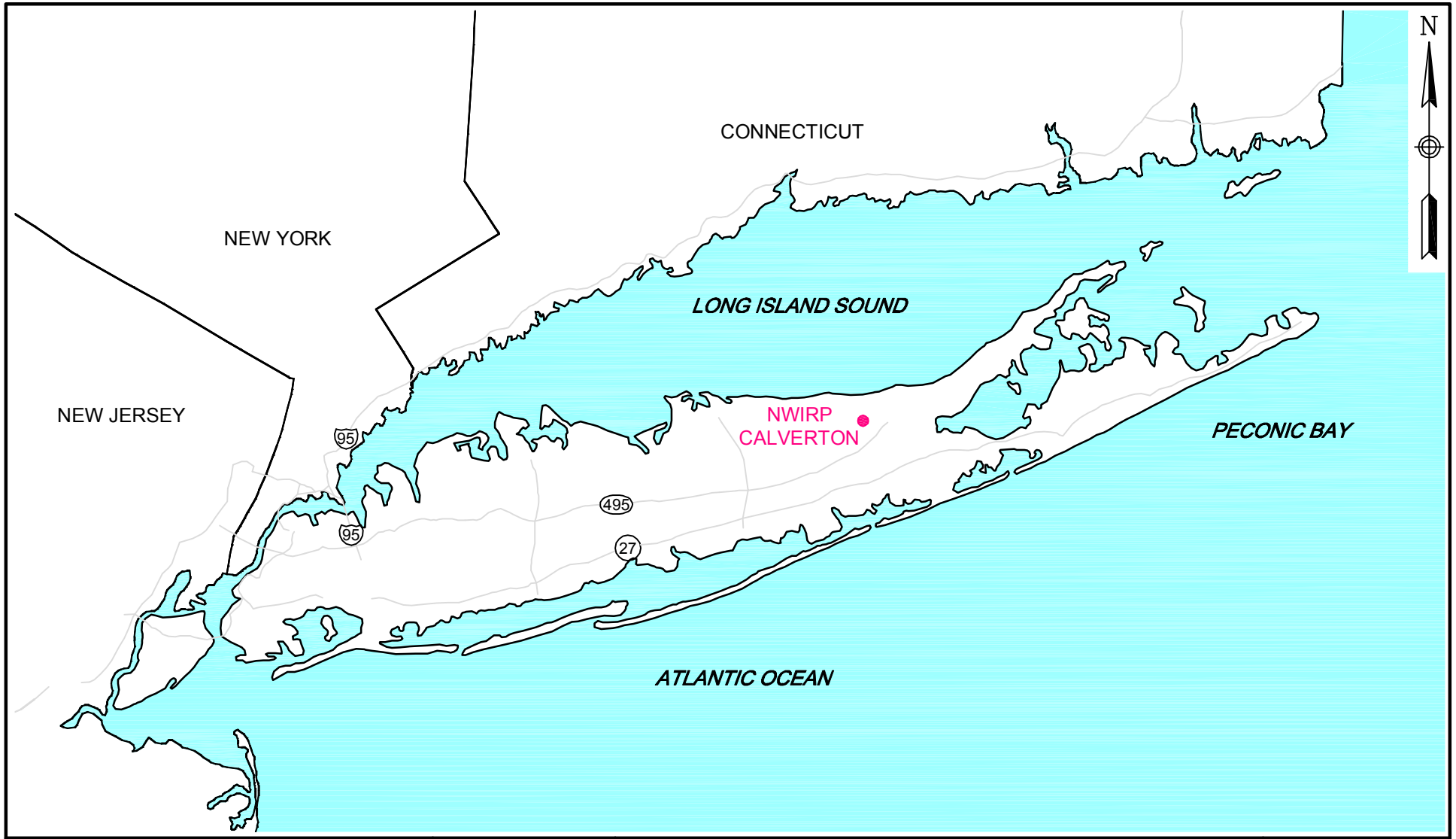
TABLE 6 - 26

RISK ASSOCIATED WITH NATURALLY OCCURRING CHEMICALS
SITE 2 - FIRE TRAINING AREA
NWIRP CALVERTON
CALVERTON, NEW YORK

Notes:
1 - Cancer risk or hazard index from only site-related chemicals detected at concentrations exceeding screening levels.
2 - Cancer risk or hazard index from only chemicals present at naturally occurring levels detected at concentrations exceeding screening levels. Arsenic was within background levels in surface/subsurface soil.
3 - Cancer risk or hazard index from all chemicals detected at concentrations exceeding screening levels.
ILCR = Incremental Lifetime Cancer Risk
HI = Hazard Index
NA = Not Applicable
NC = Not calculated. No noncarcinogenic toxicity criteria are available for the identified COPCs in surface/subsurface soil therefore HIs could not be calculated.

FIGURES

112G02750\PP.DR\112G02045CM01.DWG 07/05/12 MKB



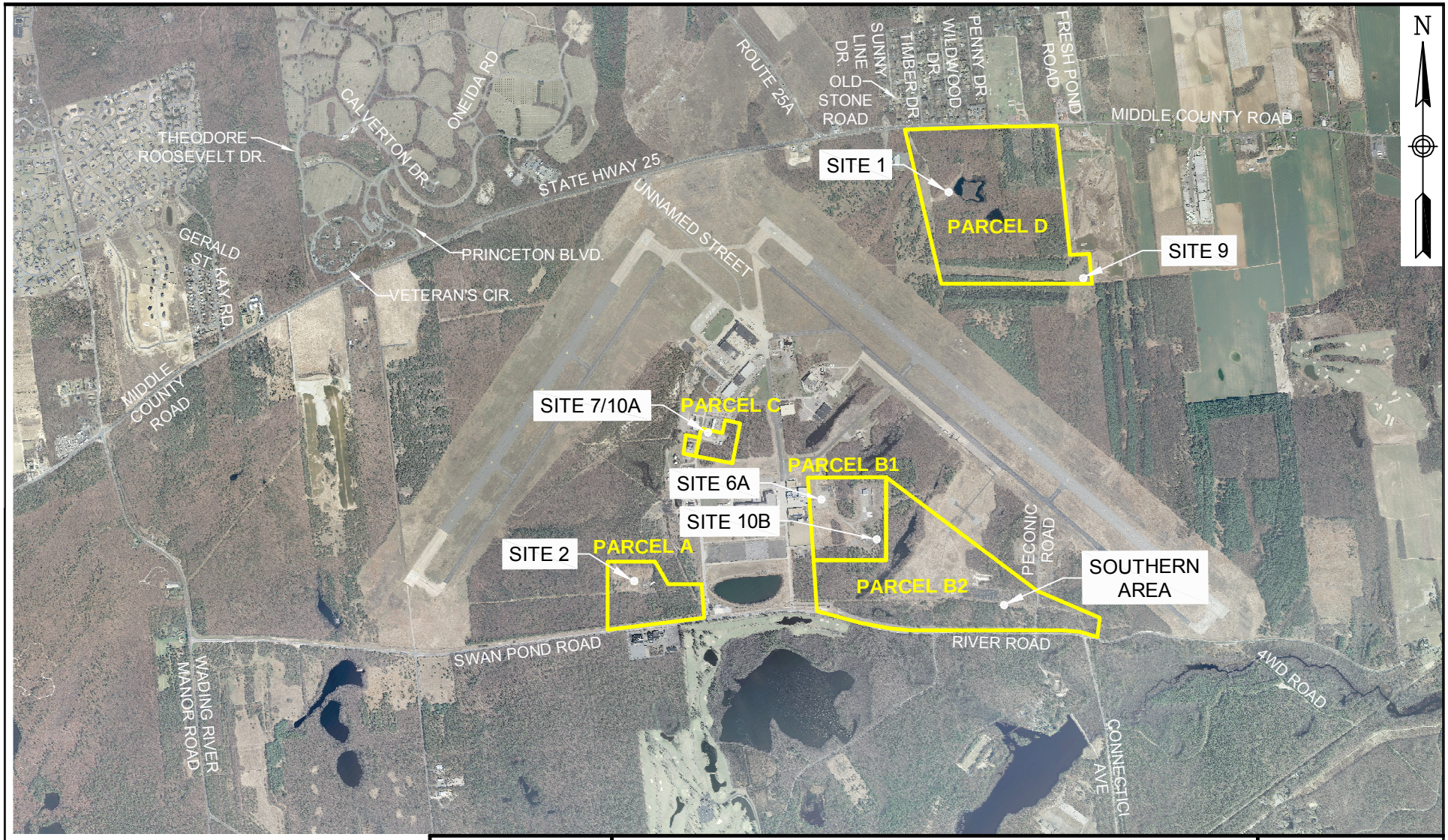
0 15 30
SCALE IN MILES

TETRA TECH

GENERAL LOCATION MAP
NWIRP CALVERTON
CALVERTON, NEW YORK

SCALE	NOT TO SCALE
FILE	112G02045CM01
REV	0
DATE	07/05/12
FIGURE NUMBER	FIGURE 1–1

112G02750\PP.DR\112G02750GM02-01.DWG 07/05/12 MKB



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0 2,400 4,800

TETRA TECH

SITE LOCATION MAP
NWIRP CALVERTON
CALVERTON, NEW YORK

SCALE	AS NOTED
FILE	112G02750GM02-01
REV	0
DATE	07/05/12
FIGURE NUMBER	FIGURE 1-2

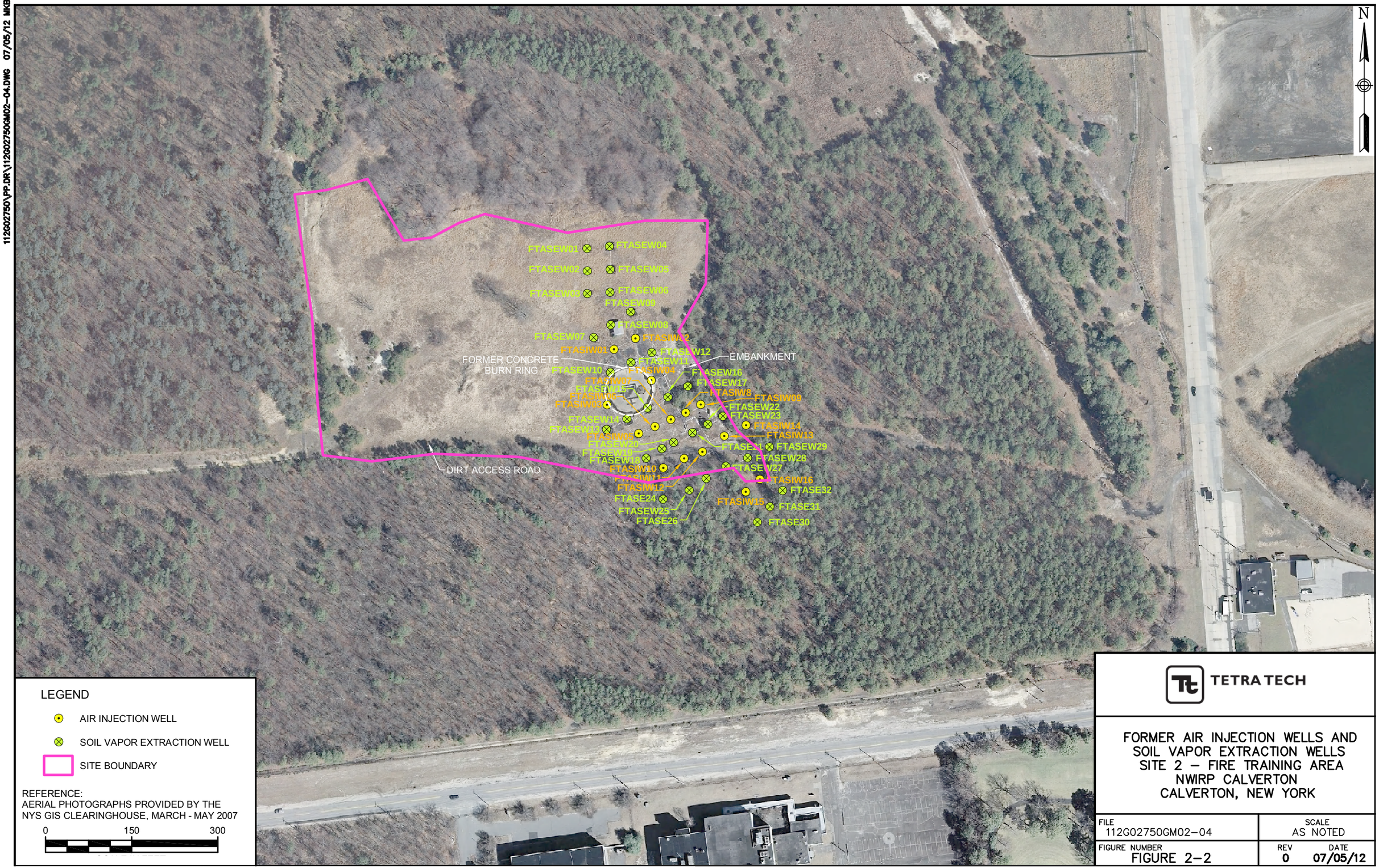
112G02750\PP.DR\112G02750GM02-12.DWG 07/05/12 MKB

TETRA TECH

SITE LAYOUT MAP
SITE 2 – FIRE TRAINING AREA
NWIRP CALVERTON
CALVERTON, NEW YORK

FILE	SCALE
112G02750GM02-12	AS NOTED
FIGURE NUMBER: FIGURE 2-1	REV: 0 / DATE: 07/05/12

112G02750\PP.DR\112G02750GM02-04.DWG 07/05/12 MKB



LEGEND

- AIR INJECTION WELL
- SOIL VAPOR EXTRACTION WELL
- SITE BOUNDARY

REFERENCE:
AERIAL PHOTOGRAPHS PROVIDED BY THE NYS GIS CLEARINGHOUSE, MARCH - MAY 2007

0 150 300

TETRA TECH

FORMER AIR INJECTION WELLS AND SOIL VAPOR EXTRACTION WELLS
SITE 2 – FIRE TRAINING AREA
NWIRP CALVERTON
CALVERTON, NEW YORK

FILE	SCALE
112G02750GM02-04	AS NOTED
FIGURE NUMBER: FIGURE 2-2	REV: 0 / DATE: 07/05/12

112G02750\PP.DR\112G02750GM02-05.DWG 09/14/12 MKB

TETRA TECH

FIRE TRAINING PIT EXCAVATION AREAS
SITE 2 – FIRE TRAINING AREA
NWIRP CALVERTON
CALVERTON, NEW YORK

FILE	SCALE
112G02750GM02-05	AS NOTED
FIGURE NUMBER	REV / DATE
FIGURE 2-3	0 / 09/14/12

112G02750\PP.DR\112G02750GM10.DWG 09/14/12 MKB

LEGEND

- MONITORING WELL LOCATION
- TEMPORARY WELL LOCATION
- SUFFOLK COUNTY TEMPORARY WELL LOCATIO
- SITE BOUNDARY

REFERENCE:
AERIAL PHOTOGRAPHS PROVIDED BY THE NYS GIS CLEARINGHOUSE, MARCH - MAY 2007

0 400 800
SCALE IN FEET

TETRA TECH

TEMPORARY WELLS (COUNTY)
SITE 2 – FIRE TRAINING AREA
NWIRP CALVERTON
CALVERTON, NEW YORK

FILE	SCALE
112G02750GM10	AS NOTED
FIGURE NUMBER: FIGURE 2–4	REV: 0 / DATE: 09/14/12

112G02750\PP.DR\112G02750GM12.DWG 09/14/12 MKB

TETRA TECH

WETLAND AREAS
SITE 2 – FIRE TRAINING AREA
NWIRP CALVERTON
CALVERTON, NEW YORK

FILE	SCALE
112G02750GM12	AS NOTED
FIGURE NUMBER: FIGURE 2–5	REV: 0 / DATE: 09/14/12

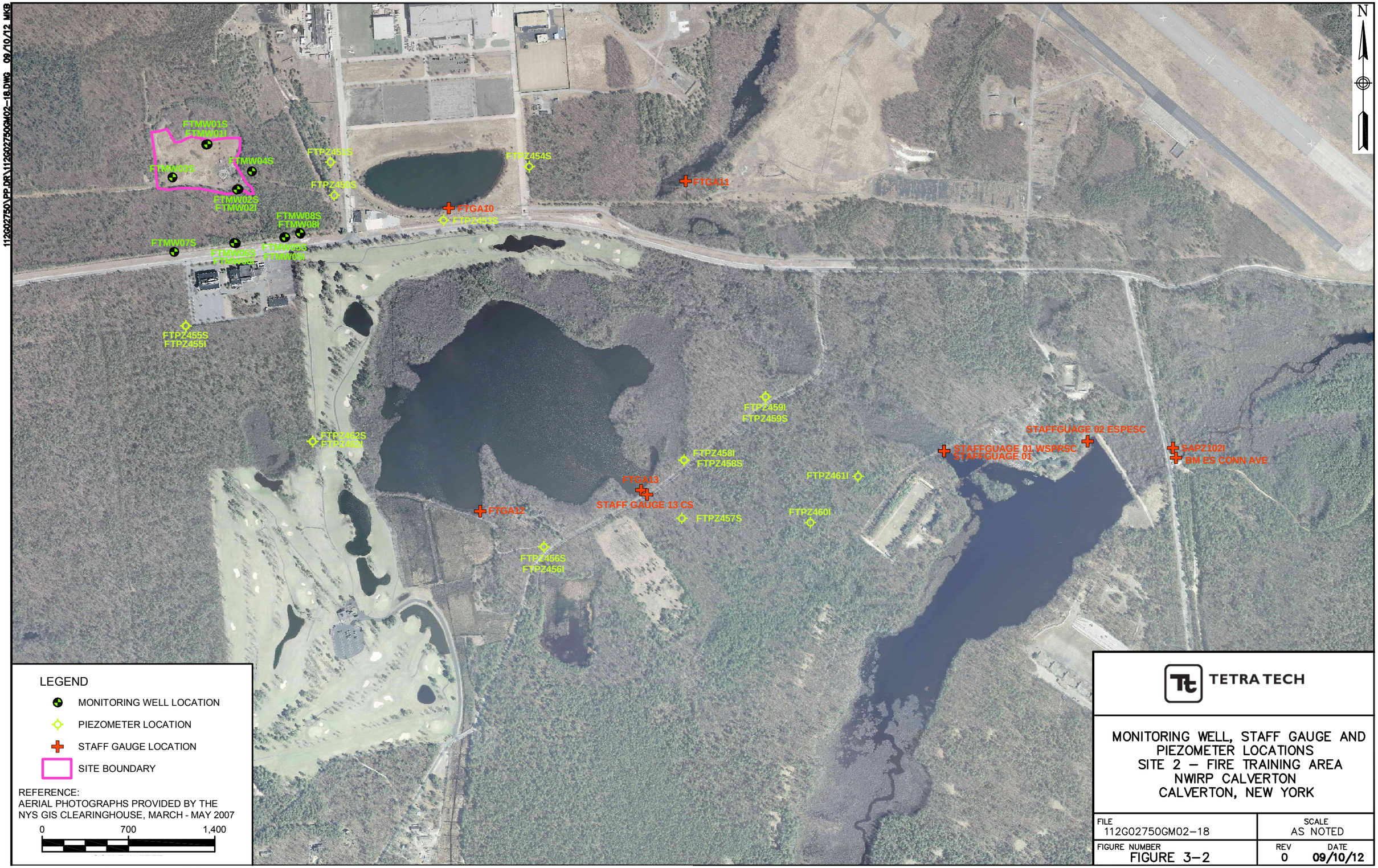
112G02750\PP.DR\112G02750GM02-08.DWG 07/05/12 MKB

TETRA TECH

SOIL BORING LOCATIONS
SITE 2 – FIRE TRAINING AREA
NWIRP CALVERTON
CALVERTON, NEW YORK

FILE	SCALE
112G02750GM02-08	AS NOTED
FIGURE NUMBER: FIGURE 3-1	REV: 0 / DATE: 07/05/12

112G02750\PP.DR\112G02750GM02-18.DWG 09/10/12 MKB



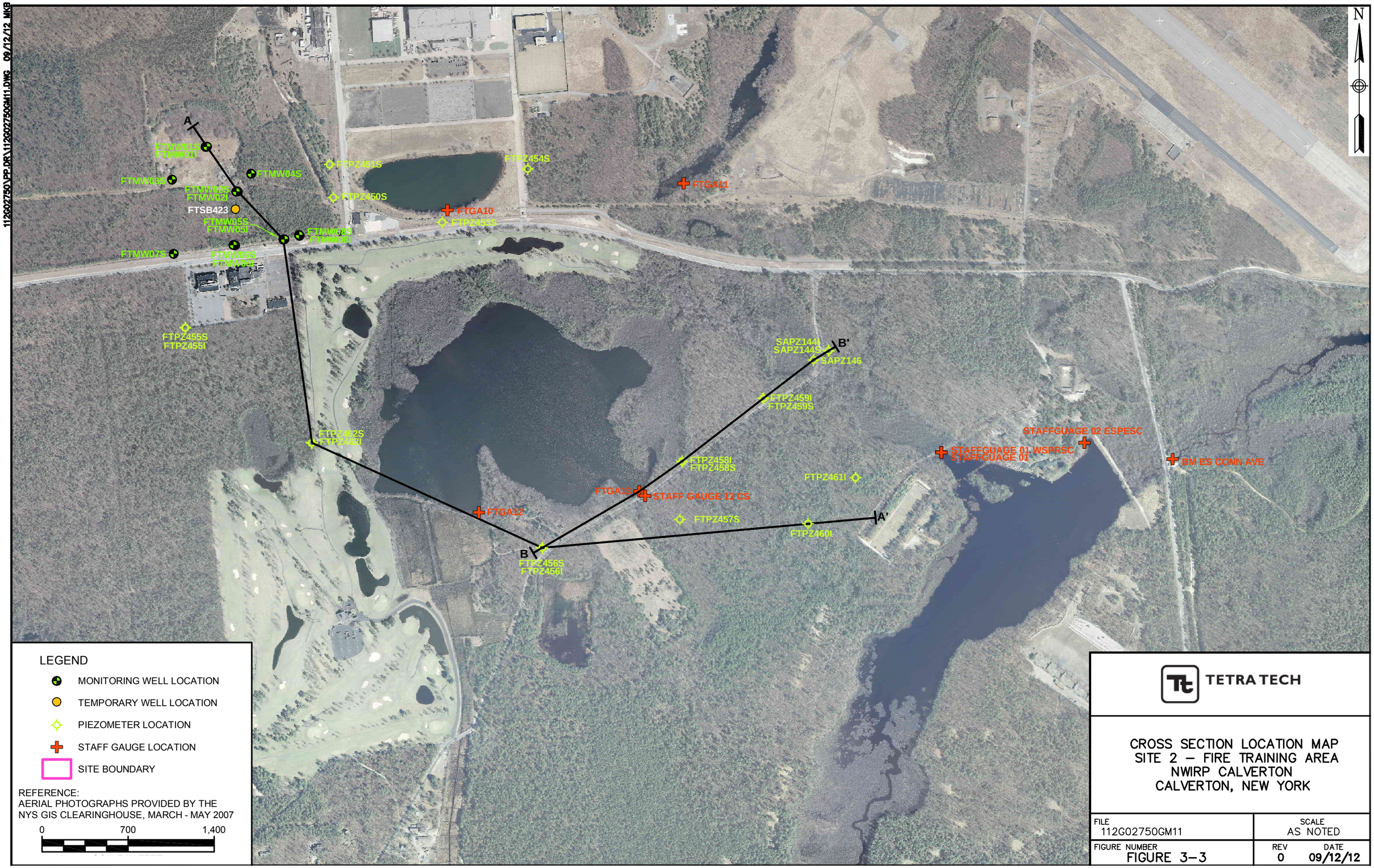
TETRA TECH

MONITORING WELL, STAFF GAUGE AND PIEZOMETER LOCATIONS
SITE 2 – FIRE TRAINING AREA
NWIRP CALVERTON
CALVERTON, NEW YORK

FILE	SCALE
112G02750GM02-18	AS NOTED

FIGURE NUMBER	REV	DATE
FIGURE 3-2	0	09/10/12

112G02750\PP_DRV\112G02750GM11.DWG 09/12/12 MKB



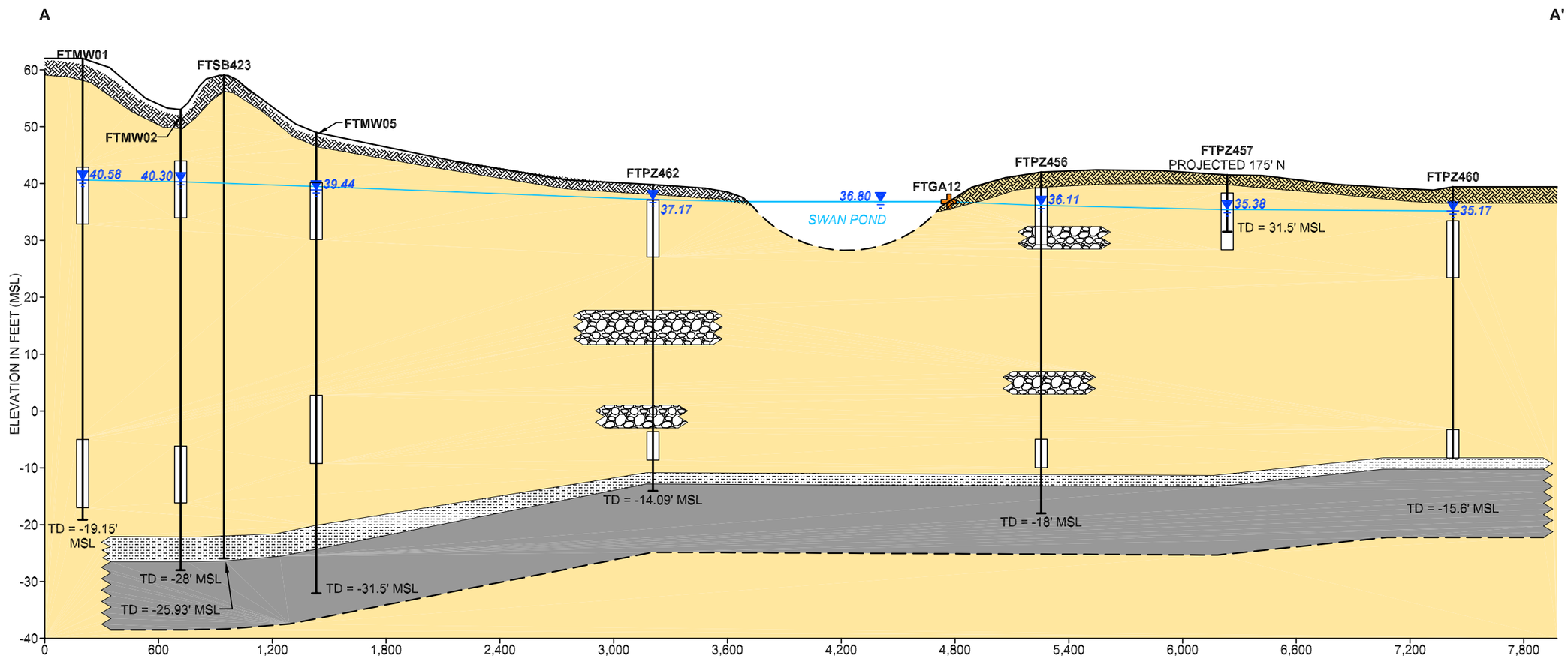
TETRA TECH

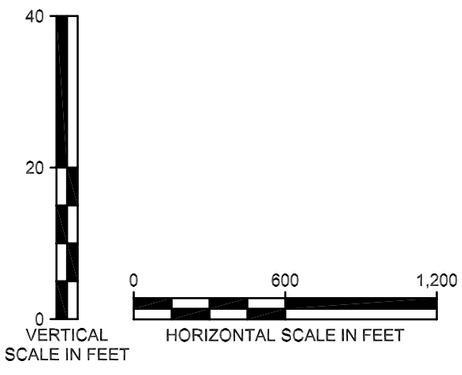
CROSS SECTION LOCATION MAP
SITE 2 – FIRE TRAINING AREA
NWIRP CALVERTON
CALVERTON, NEW YORK

FILE	SCALE
112G02750GM11	AS NOTED

FIGURE NUMBER	REV	DATE
FIGURE 3–3	0	09/12/12

112G02750\PP.DR\112G02750GS01.DWG 10/01/12 MKB





LEGEND

- ORGANICS AND ROOTS
- FINE TO MEDIUM SAND SMALL TO MEDIUM PEBBLES
- VERY FINE SAND WITH TRACES OF SILT
- CLAY
- FINE TO MEDIUM SAND
- STAFF GAUGE LOCATION

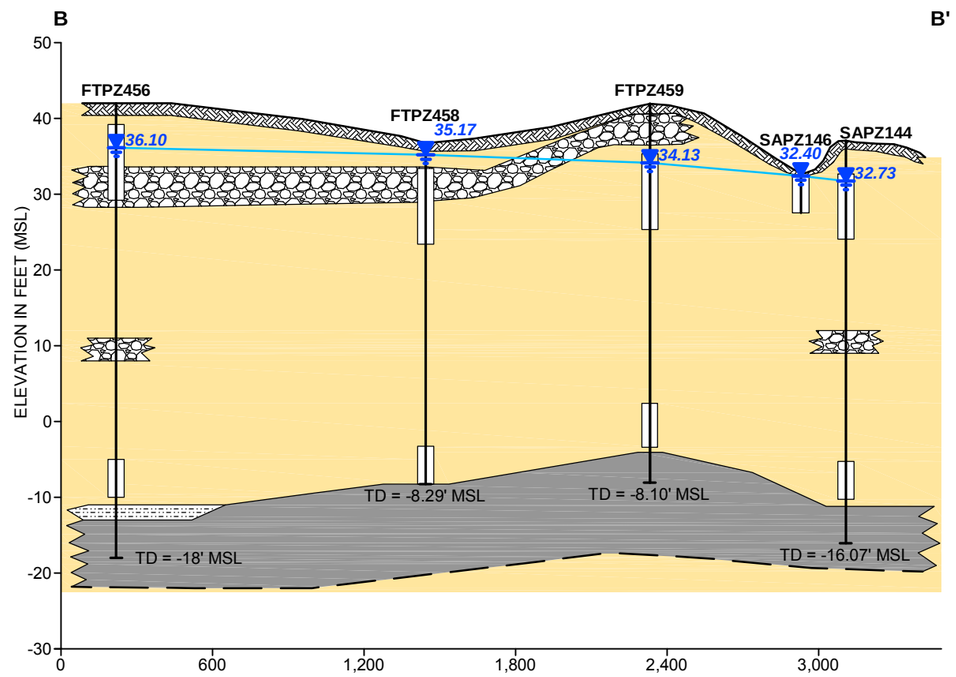
	DECEMBER 2011 WATER TABLE
37.17	DECEMBER 2011 WATER ELEVATION
FTPZ456	SOIL BORING ID
(PROJECTED 175' N)	PROJECTION
	MONITORING WELL SCREEN
TD = -14.09' MSL	TOTAL DEPTH MEAN SEA LEVEL
	GEOLOGIC CONTACT (DASHED WHEN DEPTH IS INFERRED)

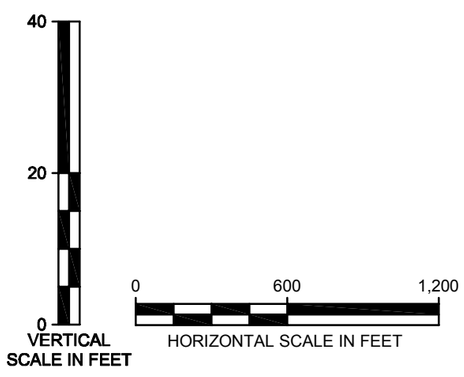
TETRA TECH

GEOLOGIC CROSS SECTION A – A'
SITE 2 – FIRE TRAINING AREA
NWIRP CALVERTON
CALVERTON, NEW YORK

FILE 112G02750GS01	SCALE AS NOTED
FIGURE NUMBER FIGURE 3–4	REV 0 DATE 10/01/12

112G02750\PP.DR\112G02750GS01.DWG 09/13/12 MKB





LEGEND

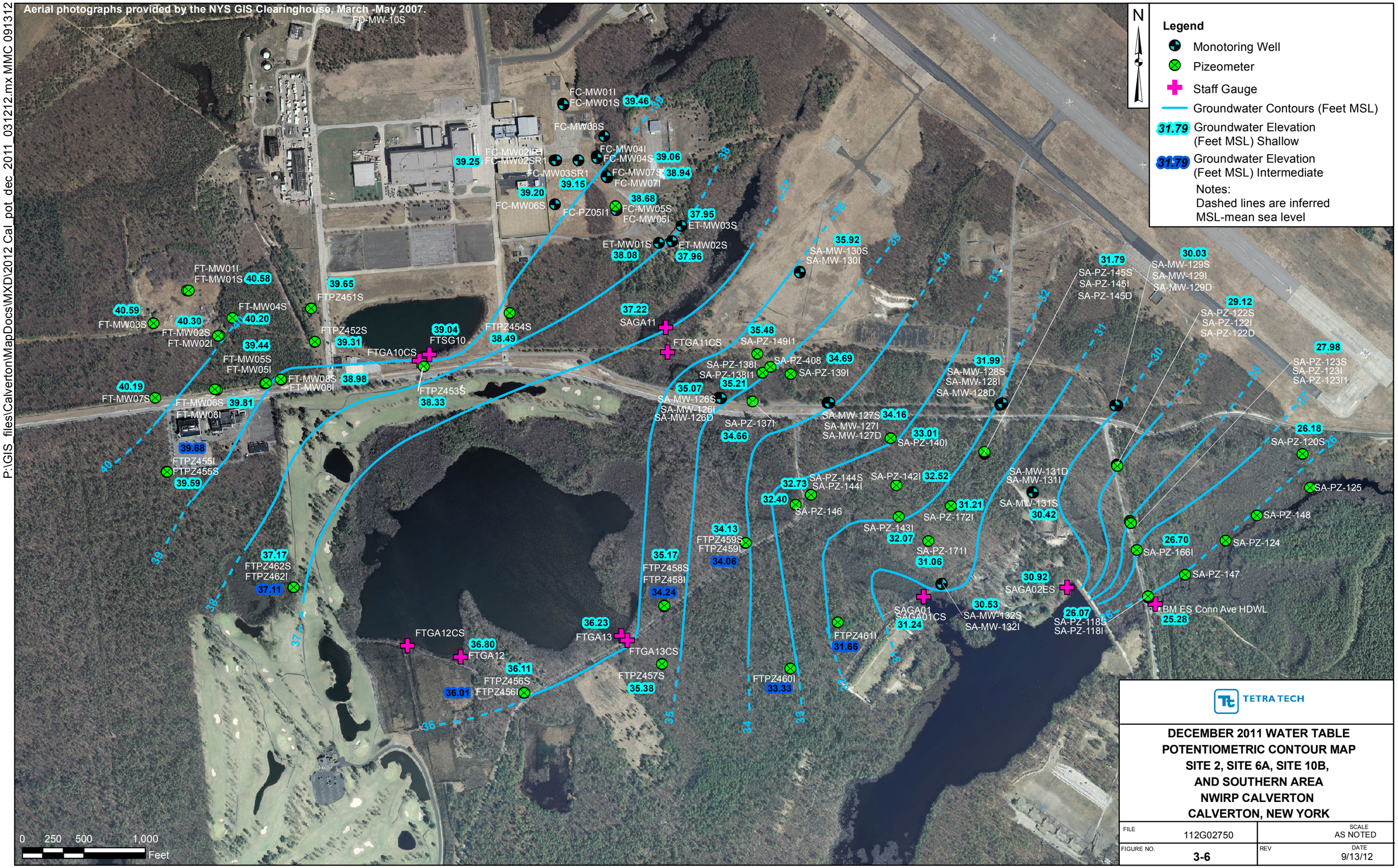
- ORGANICS AND ROOTS
- FINE TO MEDIUM SAND SMALL MEDIUM PEBBLES
- VERY FINE SAND WITH TRACES OF SILT
- CLAY
- FINE TO MEDIUM SAND

- DECEMBER 2011 WATER TABLE
- 36.10 — DECEMBER 2011 WATER ELEVATION
- FTPZ459 — SOIL BORING ID
- MONITORING WELL SCREEN
- TD = -8.29' MSL — TOTAL DEPTH MEAN SEA LEVEL
- GEOLOGIC CONTACT (DASHED WHEN DEPTH IS INFERRED)

TETRA TECH

GEOLOGIC CROSS SECTION B – B'
SITE 2 – FIRE TRAINING AREA
NWIRP CALVERTON
CALVERTON, NEW YORK

FILE	SCALE
112G02750GS01	AS NOTED
FIGURE NUMBER	REV / DATE
FIGURE 3–5	0 / 09/13/12



TETRA TECH

DECEMBER 2011 WATER TABLE POTENTIOMETRIC CONTOUR MAP SITE 2, SITE 6A, SITE 10B, AND SOUTHERN AREA NWIRP CALVERTON CALVERTON, NEW YORK

FILE 112G02750	SCALE AS NOTED
FIGURE NO. 3-6	REV / DATE 9/13/12

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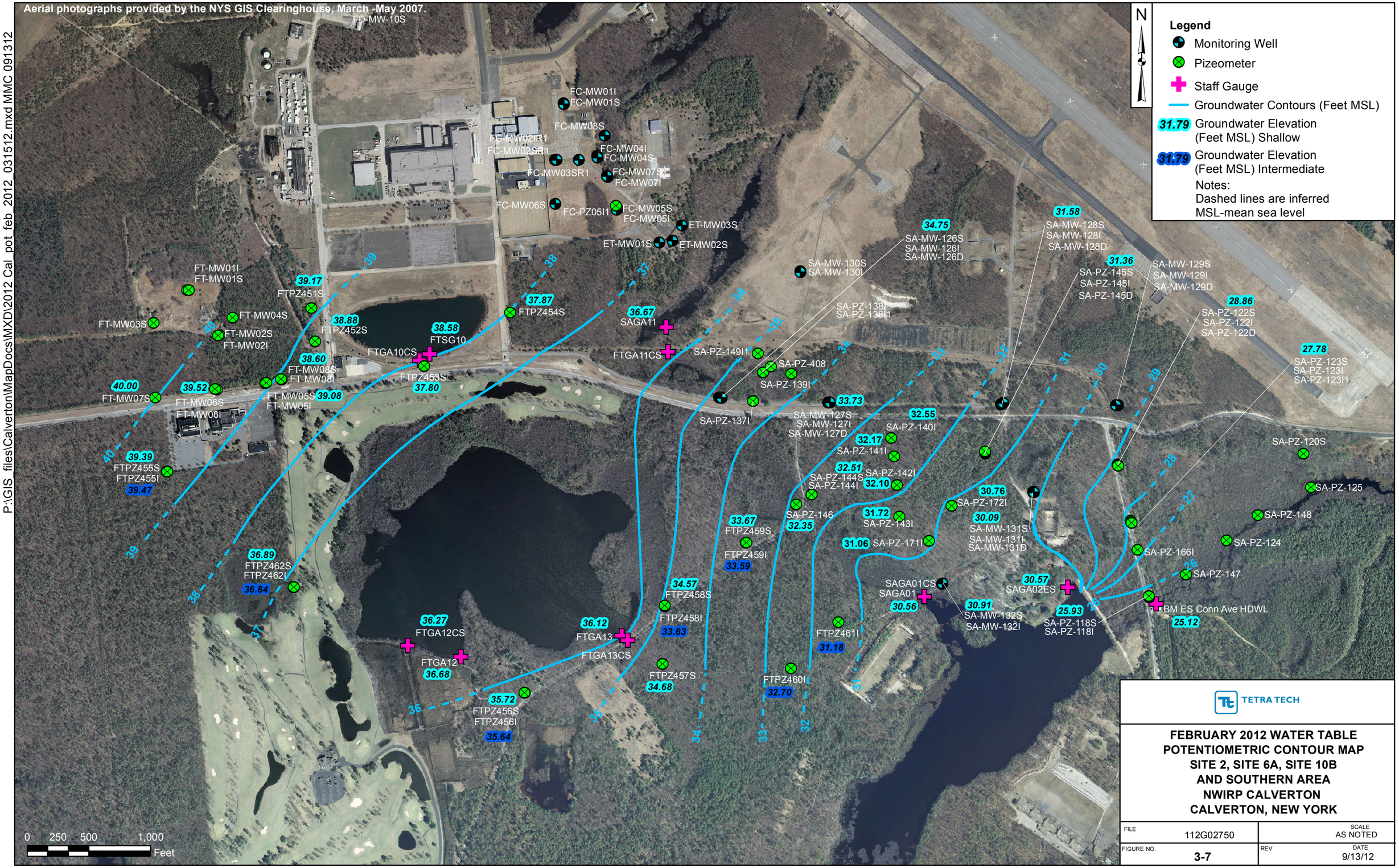

TETRA TECH

FEBRUARY 2012 WATER TABLE POTENTIOMETRIC CONTOUR MAP SITE 2, SITE 6A, SITE 10B AND SOUTHERN AREA NWIRP CALVERTON CALVERTON, NEW YORK

FILE	SCALE
112G02750	AS NOTED
FIGURE NO. 3-7	REV / DATE 9/13/12

P:\GIS_files\Calverton\MapDocs\MXD\2012 Cal_pot_feb_2012_031512.mxd MMC 091312

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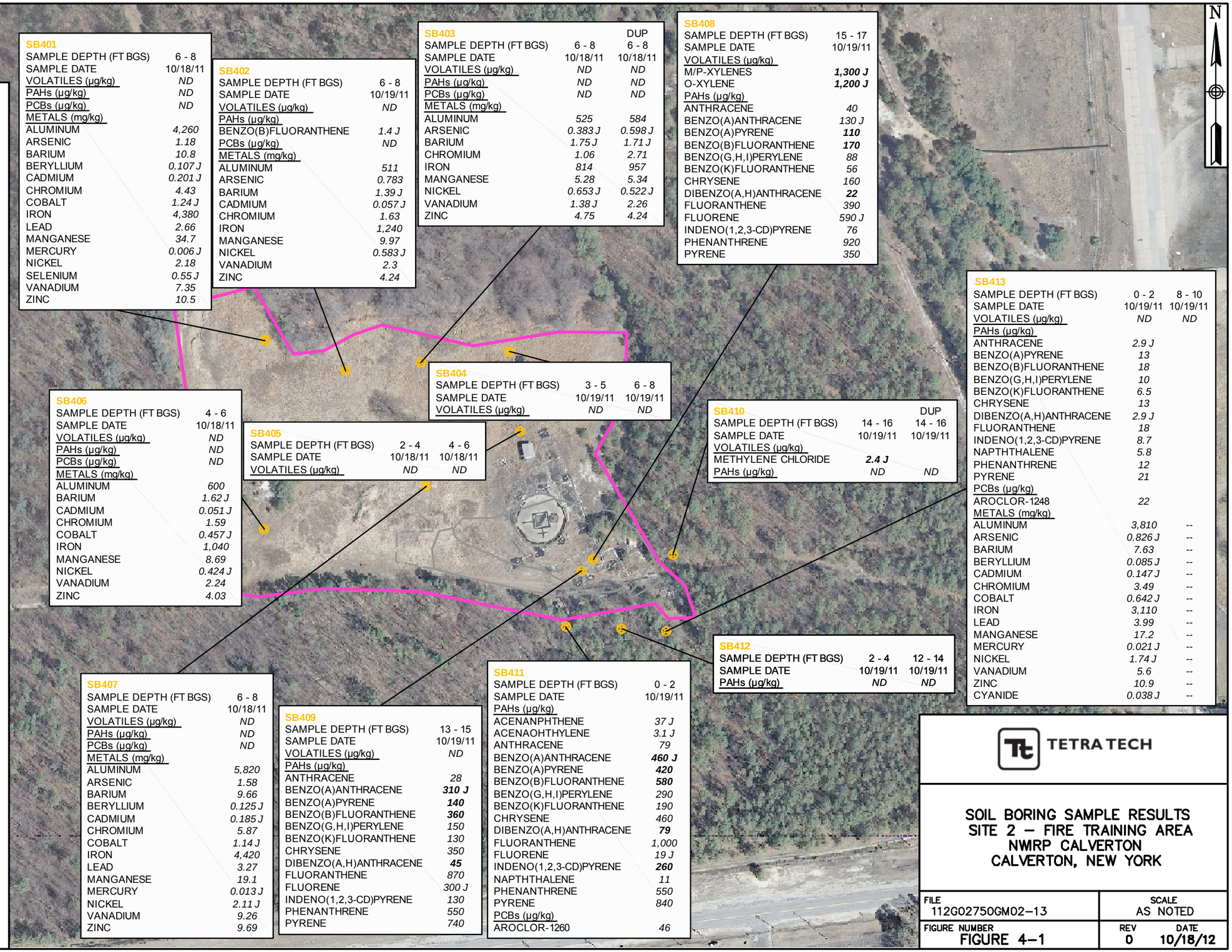


LEGEND

SOIL BORING LOCATION

SITE BOUNDARY

PROJECT SCREENING LEVELS

VOLATILES (µg/kg)	
M/P-XYLENES	1,200
METHYLENE CHLORIDE	1.2
O-XYLENE	1,200
PAHs (µg/kg)	
ACENANPHTHENE	20,000
ACENAOHTHYLENE	100,000
ANTHRACENE	100,000
BENZO(A)ANTHRACENE	150
BENZO(A)PYRENE	15
BENZO(B)FLUORANTHENE	150
BENZO(G,H,I)PERYLENE	100,000
BENZO(K)FLUORANTHENE	800
CHRYSENE	1,000
DIBENZO(A,H)ANTHRACENE	15
FLUORANTHENE	100,000
FLUORENE	30,000
INDENO(1,2,3-CD)PYRENE	150
NAPTHTHALENE	3,600
PHENANTHRENE	100,000
PYRENE	100,000
PCBs (µg/kg)	
AROCLOR-1248	220
AROCLOR-1260	220
METALS (mg/kg)	
ALUMINUM	77,000
ARSENIC	14
BARIUM	350
BERYLLIUM	7.2
CADMIUM	2.5
CHROMIUM	23.6
COBALT	23
IRON	55,000
LEAD	63
MANGANESE	1,600
MERCURY	0.18
NICKEL	30
SELENIUM	3.9
VANADIUM	43.6
ZINC	109
CYANIDE	27

NOTES:
1. BOLD = EXCEEDS PROJECT SCREENING LEVELS
2. -- = NOT ANALYZED
3. BLANK = NOT DETECTED
4. µg/kg = MICROGRAMS PER KILOGRAMS
5. FT BGS = FEET BELOW GROUND SURFACE
6. mg/kg = MILLIGRAMS PER KILOGRAMS
7. PAHs = POLYCYCLIC AROMATIC HYDROCARBONS
8. VOCs = VOLATILE ORGANIC COMPOUNDS
9. PCBs = POLYCHLORINATED BIPHENYLS

REFERENCE:
AERIAL PHOTOGRAPHS PROVIDED BY THE NYS GIS CLEARINGHOUSE, MARCH - MAY 2007

0 150 300
SCALE IN FEET

SB401

SAMPLE DEPTH (FT BGS)	6 - 8
SAMPLE DATE	10/18/11
VOLATILES (µg/kg)	ND
PAHs (µg/kg)	ND
PCBs (µg/kg)	ND
METALS (mg/kg)	
ALUMINUM	4,260
ARSENIC	1.18
BARIUM	10.8
BERYLLIUM	0.107 J
CADMIUM	0.201 J
CHROMIUM	4.43
COBALT	1.24 J
IRON	4,380
LEAD	2.66
MANGANESE	34.7
MERCURY	0.006 J
NICKEL	2.18
SELENIUM	0.55 J
VANADIUM	7.35
ZINC	10.5

SB402

SAMPLE DEPTH (FT BGS)	6 - 8
SAMPLE DATE	10/19/11
VOLATILES (µg/kg)	ND
PAHs (µg/kg)	
BENZO(B)FLUORANTHENE	1.4 J
PCBs (µg/kg)	ND
METALS (mg/kg)	
ALUMINUM	511
ARSENIC	0.783
BARIUM	1.39 J
CADMIUM	0.057 J
CHROMIUM	1.63
IRON	1,240
MANGANESE	9.97
NICKEL	0.583 J
VANADIUM	2.3
ZINC	4.24

SB403

		DUP
SAMPLE DEPTH (FT BGS)	6 - 8	6 - 8
SAMPLE DATE	10/18/11	10/18/11
VOLATILES (µg/kg)	ND	ND
PAHs (µg/kg)	ND	ND
PCBs (µg/kg)	ND	ND
METALS (mg/kg)		
ALUMINUM	525	584
ARSENIC	0.383 J	0.598 J
BARIUM	1.75 J	1.71 J
CHROMIUM	1.06	2.71
IRON	814	957
MANGANESE	5.28	5.34
NICKEL	0.653 J	0.522 J
VANADIUM	1.38 J	2.26
ZINC	4.75	4.24

SB408

SAMPLE DEPTH (FT BGS)	15 - 17
SAMPLE DATE	10/19/11
VOLATILES (µg/kg)	
M/P-XYLENES	**1,300 J**
O-XYLENE	**1,200 J**
PAHs (µg/kg)	
ANTHRACENE	40
BENZO(A)ANTHRACENE	130 J
BENZO(A)PYRENE	**110**
BENZO(B)FLUORANTHENE	**170**
BENZO(G,H,I)PERYLENE	88
BENZO(K)FLUORANTHENE	56
CHRYSENE	160
DIBENZO(A,H)ANTHRACENE	**22**
FLUORANTHENE	390
FLUORENE	590 J
INDENO(1,2,3-CD)PYRENE	76
PHENANTHRENE	920
PYRENE	350

SB413

SAMPLE DEPTH (FT BGS)	0 - 2	8 - 10
SAMPLE DATE	10/19/11	10/19/11
VOLATILES (µg/kg)	ND	ND
PAHs (µg/kg)		
ANTHRACENE	2.9 J	
BENZO(A)PYRENE	13	
BENZO(B)FLUORANTHENE	18	
BENZO(G,H,I)PERYLENE	10	
BENZO(K)FLUORANTHENE	6.5	
CHRYSENE	13	
DIBENZO(A,H)ANTHRACENE	2.9 J	
FLUORANTHENE	18	
INDENO(1,2,3-CD)PYRENE	8.7	
NAPTHTHALENE	5.8	
PHENANTHRENE	12	
PYRENE	21	
PCBs (µg/kg)		
AROCLOR-1248	22	
METALS (mg/kg)		
ALUMINUM	3,810	--
ARSENIC	0.826 J	--
BARIUM	7.63	--
BERYLLIUM	0.085 J	--
CADMIUM	0.147 J	--
CHROMIUM	3.49	--
COBALT	0.642 J	--
IRON	3,110	--
LEAD	3.99	--
MANGANESE	17.2	--
MERCURY	0.021 J	--
NICKEL	1.74 J	--
VANADIUM	5.6	--
ZINC	10.9	--
CYANIDE	0.038 J	--

SB404

SAMPLE DEPTH (FT BGS)	3 - 5	6 - 8
SAMPLE DATE	10/19/11	10/19/11
VOLATILES (µg/kg)	ND	ND

SB406

SAMPLE DEPTH (FT BGS)	4 - 6
SAMPLE DATE	10/18/11
VOLATILES (µg/kg)	ND
PAHs (µg/kg)	ND
PCBs (µg/kg)	ND
METALS (mg/kg)	
ALUMINUM	600
BARIUM	1.62 J
CADMIUM	0.051 J
CHROMIUM	1.59
COBALT	0.457 J
IRON	1,040
MANGANESE	8.69
NICKEL	0.424 J
VANADIUM	2.24
ZINC	4.03

SB405

SAMPLE DEPTH (FT BGS)	2 - 4	4 - 6
SAMPLE DATE	10/18/11	10/18/11
VOLATILES (µg/kg)	ND	ND

SB410

		DUP
SAMPLE DEPTH (FT BGS)	14 - 16	14 - 16
SAMPLE DATE	10/19/11	10/19/11
VOLATILES (µg/kg)		
METHYLENE CHLORIDE	**2.4 J**	
PAHs (µg/kg)	ND	ND

SB412

SAMPLE DEPTH (FT BGS)	2 - 4	12 - 14
SAMPLE DATE	10/19/11	10/19/11
PAHs (µg/kg)	ND	ND

SB407

SAMPLE DEPTH (FT BGS)	6 - 8
SAMPLE DATE	10/18/11
VOLATILES (µg/kg)	ND
PAHs (µg/kg)	ND
PCBs (µg/kg)	ND
METALS (mg/kg)	
ALUMINUM	5,820
ARSENIC	1.58
BARIUM	9.66
BERYLLIUM	0.125 J
CADMIUM	0.185 J
CHROMIUM	5.87
COBALT	1.14 J
IRON	4,420
LEAD	3.27
MANGANESE	19.1
MERCURY	0.013 J
NICKEL	2.11 J
VANADIUM	9.26
ZINC	9.69

SB409

SAMPLE DEPTH (FT BGS)	13 - 15
SAMPLE DATE	10/19/11
VOLATILES (µg/kg)	ND
PAHs (µg/kg)	
ANTHRACENE	28
BENZO(A)ANTHRACENE	**310 J**
BENZO(A)PYRENE	**140**
BENZO(B)FLUORANTHENE	**360**
BENZO(G,H,I)PERYLENE	150
BENZO(K)FLUORANTHENE	130
CHRYSENE	350
DIBENZO(A,H)ANTHRACENE	**45**
FLUORANTHENE	870
FLUORENE	300 J
INDENO(1,2,3-CD)PYRENE	130
PHENANTHRENE	550
PYRENE	740

SB411

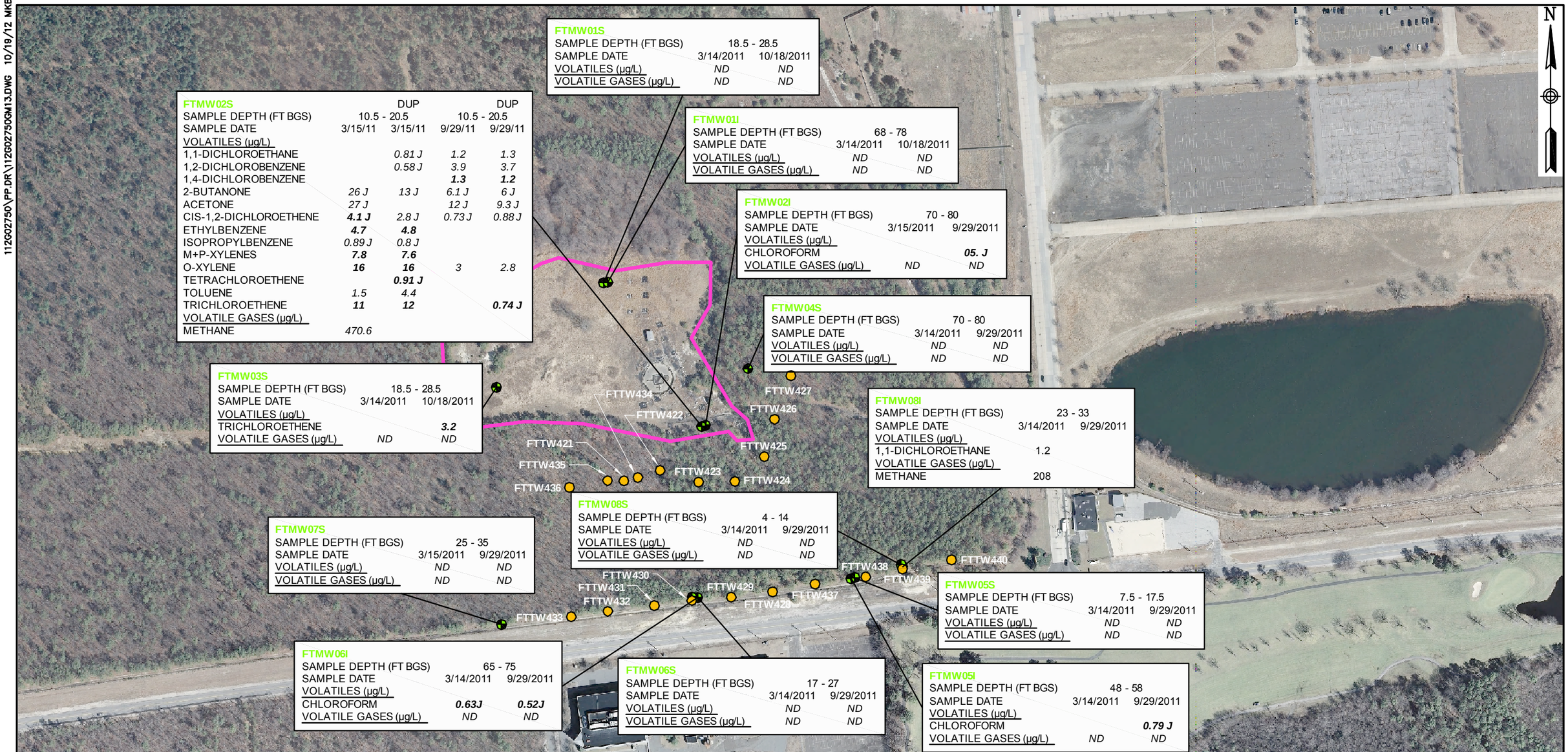
SAMPLE DEPTH (FT BGS)	0 - 2
SAMPLE DATE	10/19/11
PAHs (µg/kg)	
ACENANPHTHENE	37 J
ACENAOHTHYLENE	3.1 J
ANTHRACENE	79
BENZO(A)ANTHRACENE	**460 J**
BENZO(A)PYRENE	**420**
BENZO(B)FLUORANTHENE	**580**
BENZO(G,H,I)PERYLENE	290
BENZO(K)FLUORANTHENE	190
CHRYSENE	460
DIBENZO(A,H)ANTHRACENE	**79**
FLUORANTHENE	1,000
FLUORENE	19 J
INDENO(1,2,3-CD)PYRENE	**260**
NAPTHTHALENE	11
PHENANTHRENE	550
PYRENE	840
PCBs (µg/kg)	
AROCLOR-1260	46

TETRA TECH

SOIL BORING SAMPLE RESULTS
SITE 2 – FIRE TRAINING AREA
NWIRP CALVERTON
CALVERTON, NEW YORK

FILE	SCALE
112G02750GM02-13	AS NOTED
FIGURE NUMBER: FIGURE 4-1	REV: 0 / DATE: 10/18/12

112G02750\PP.DR\112G02750GM13.DWG 10/19/12 MKB



FTMW01S

SAMPLE DEPTH (FT BGS)	18.5 - 28.5	
SAMPLE DATE	3/14/2011	10/18/2011
VOLATILES (µg/L)	*ND*	*ND*
VOLATILE GASES (µg/L)	*ND*	*ND*

FTMW01I

SAMPLE DEPTH (FT BGS)	68 - 78	
SAMPLE DATE	3/14/2011	10/18/2011
VOLATILES (µg/L)	*ND*	*ND*
VOLATILE GASES (µg/L)	*ND*	*ND*

FTMW02S

		DUP		DUP
SAMPLE DEPTH (FT BGS)	10.5 - 20.5		10.5 - 20.5	
SAMPLE DATE	3/15/11	3/15/11	9/29/11	9/29/11
VOLATILES (µg/L)				
1,1-DICHLOROETHANE		*0.81 J*	*1.2*	*1.3*
1,2-DICHLOROBENZENE		*0.58 J*	*3.9*	*3.7*
1,4-DICHLOROBENZENE			***1.3***	***1.2***
2-BUTANONE	*26 J*	*13 J*	*6.1 J*	*6 J*
ACETONE	*27 J*		*12 J*	*9.3 J*
CIS-1,2-DICHLOROETHENE	***4.1 J***	*2.8 J*	*0.73 J*	*0.88 J*
ETHYLBENZENE	***4.7***	***4.8***		
ISOPROPYLBENZENE	*0.89 J*	*0.8 J*		
M+P-XYLENES	***7.8***	***7.6***		
O-XYLENE	***16***	***16***	*3*	*2.8*
TETRACHLOROETHENE		***0.91 J***		
TOLUENE	*1.5*	*4.4*		
TRICHLOROETHENE	***11***	***12***		***0.74 J***
VOLATILE GASES (µg/L)				
METHANE	*470.6*			

FTMW02I

SAMPLE DEPTH (FT BGS)	70 - 80	
SAMPLE DATE	3/15/2011	9/29/2011
VOLATILES (µg/L)		
CHLOROFORM		***05. J***
VOLATILE GASES (µg/L)	*ND*	*ND*

FTMW04S

SAMPLE DEPTH (FT BGS)	70 - 80	
SAMPLE DATE	3/14/2011	9/29/2011
VOLATILES (µg/L)	*ND*	*ND*
VOLATILE GASES (µg/L)	*ND*	*ND*

FTMW03S

SAMPLE DEPTH (FT BGS)	18.5 - 28.5	
SAMPLE DATE	3/14/2011	10/18/2011
VOLATILES (µg/L)		
TRICHLOROETHENE		***3.2***
VOLATILE GASES (µg/L)	*ND*	*ND*

FTMW08I

SAMPLE DEPTH (FT BGS)	23 - 33	
SAMPLE DATE	3/14/2011	9/29/2011
VOLATILES (µg/L)		
1,1-DICHLOROETHANE	1.2	
VOLATILE GASES (µg/L)		
METHANE	208	

FTMW08S

SAMPLE DEPTH (FT BGS)	4 - 14	
SAMPLE DATE	3/14/2011	9/29/2011
VOLATILES (µg/L)	*ND*	*ND*
VOLATILE GASES (µg/L)	*ND*	*ND*

FTMW07S

SAMPLE DEPTH (FT BGS)	25 - 35	
SAMPLE DATE	3/15/2011	9/29/2011
VOLATILES (µg/L)	*ND*	*ND*
VOLATILE GASES (µg/L)	*ND*	*ND*

FTMW05S

SAMPLE DEPTH (FT BGS)	7.5 - 17.5	
SAMPLE DATE	3/14/2011	9/29/2011
VOLATILES (µg/L)	*ND*	*ND*
VOLATILE GASES (µg/L)	*ND*	*ND*

FTMW06I

SAMPLE DEPTH (FT BGS)	65 - 75	
SAMPLE DATE	3/14/2011	9/29/2011
VOLATILES (µg/L)		
CHLOROFORM	***0.63J***	***0.52J***
VOLATILE GASES (µg/L)	*ND*	*ND*

FTMW06S

SAMPLE DEPTH (FT BGS)	17 - 27	
SAMPLE DATE	3/14/2011	9/29/2011
VOLATILES (µg/L)	*ND*	*ND*
VOLATILE GASES (µg/L)	*ND*	*ND*

FTMW05I

SAMPLE DEPTH (FT BGS)	48 - 58	
SAMPLE DATE	3/14/2011	9/29/2011
VOLATILES (µg/L)		
CHLOROFORM		***0.79 J***
VOLATILE GASES (µg/L)	*ND*	*ND*

LEGEND

- EXISTING MONITORING WELL LOCATION
- TEMPORARY WELL LOCATION
- SITE BOUNDARY

REFERENCE:
AERIAL PHOTOGRAPHS PROVIDED BY THE NYS GIS CLEARINGHOUSE, MARCH - MAY 2007

0 250 500
SCALE IN FEET

NYSDOH MCLs

	(µg/L)
1,1-DICHLOROETHANE	*5*
1,2-DICHLOROBENZENE	*5*
1,4-DICHLOROBENZENE	*5*
2-BUTANONE	*50*
ACETONE	*50*
CHLOROFORM	*50*
CIS-1,2-DICHLOROETHENE	*5*
ETHYLBENZENE	*5*
ISOPROPYLBENZENE	*50*
M+P-XYLENES	*5*
O-XYLENE	*5*
TETRACHLOROETHENE	*5*
TOLUENE	*5*
TRICHLOROETHENE	*5*
VINYL CHLORIDE	*2*

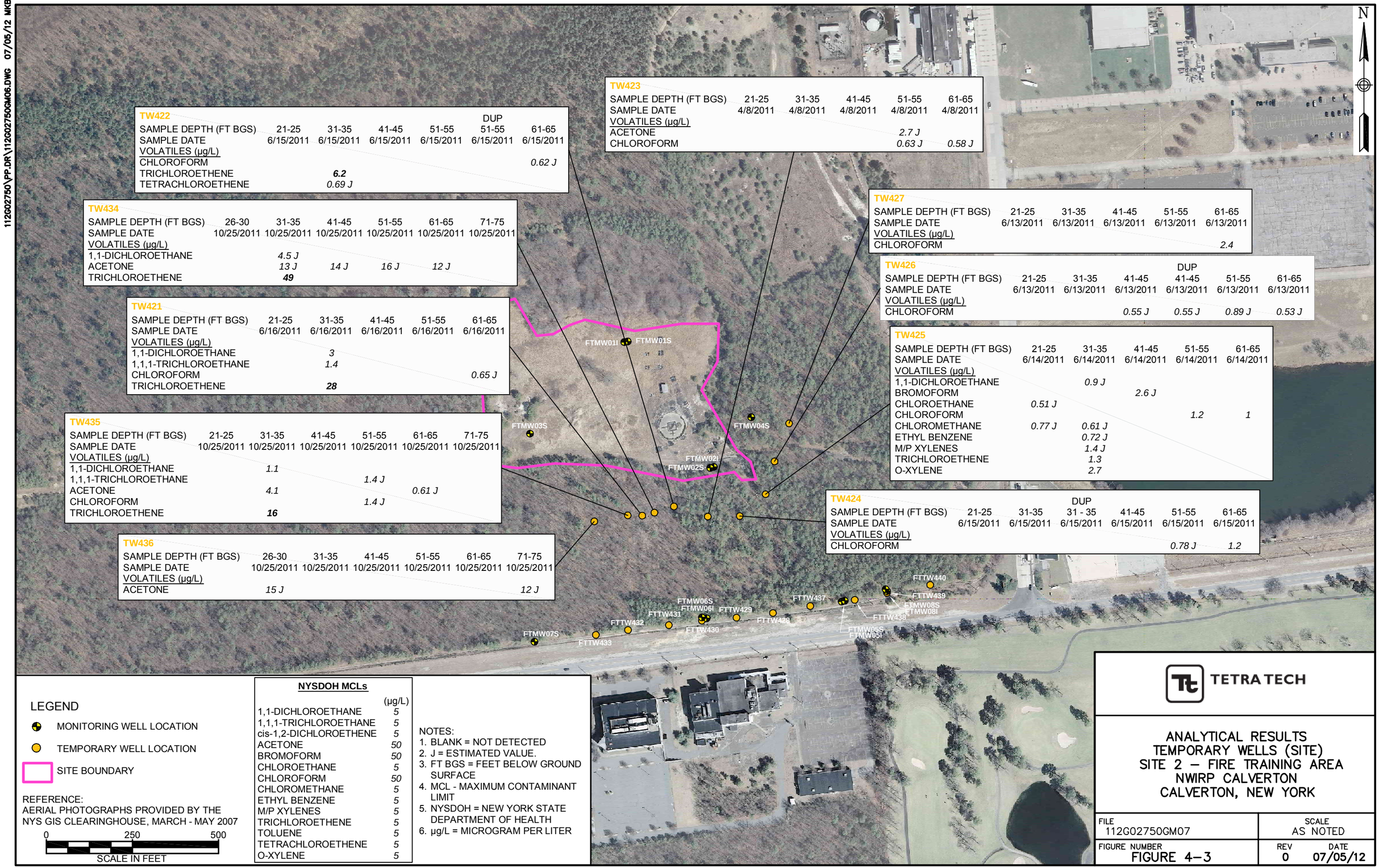
NOTES:
1. ND = NOT DETECTED
2. BLANK = NOT DETECTED
3. J = ESTIMATED VALUE
4. FT BGS = FEET BELOW GROUND SURFACE
5. MCL - MAXIMUM CONTAMINANT LIMIT
6. NYSDOH = NEW YORK STATE DEPARTMENT OF HEALTH
7. µg/L = MICROGRAM PER LITER
8. BOLD ITALIC - EXCEEDS THE NYS DEPARTMENT OF HEALTH (DOH) MCL

TETRA TECH

MONITORING WELL
ANALYTICAL RESULTS
SITE 2 – FIRE TRAINING AREA
NWIRP CALVERTON
CALVERTON, NEW YORK

FILE 112G02750GM13	SCALE AS NOTED
FIGURE NUMBER FIGURE 4-2	REV 0 / DATE 10/19/12

112G02750\PP.DR\112G02750GM06.DWG 07/05/12 MKB



TW422

SAMPLE DEPTH (FT BGS)	21-25	31-35	41-45	51-55	DUP 51-55	61-65
SAMPLE DATE	6/15/2011	6/15/2011	6/15/2011	6/15/2011	6/15/2011	6/15/2011
VOLATILES (µg/L)						
CHLOROFORM						*0.62 J*
TRICHLOROETHENE		***6.2***				
TETRACHLOROETHENE		*0.69 J*				

TW423

SAMPLE DEPTH (FT BGS)	21-25	31-35	41-45	51-55	61-65
SAMPLE DATE	4/8/2011	4/8/2011	4/8/2011	4/8/2011	4/8/2011
VOLATILES (µg/L)					
ACETONE				*2.7 J*	
CHLOROFORM				*0.63 J*	*0.58 J*

TW434

SAMPLE DEPTH (FT BGS)	26-30	31-35	41-45	51-55	61-65	71-75
SAMPLE DATE	10/25/2011	10/25/2011	10/25/2011	10/25/2011	10/25/2011	10/25/2011
VOLATILES (µg/L)						
1,1-DICHLOROETHANE		*4.5 J*				
ACETONE		*13 J*	*14 J*	*16 J*	*12 J*	
TRICHLOROETHENE		***49***				

TW427

SAMPLE DEPTH (FT BGS)	21-25	31-35	41-45	51-55	61-65
SAMPLE DATE	6/13/2011	6/13/2011	6/13/2011	6/13/2011	6/13/2011
VOLATILES (µg/L)					
CHLOROFORM					*2.4*

TW426

SAMPLE DEPTH (FT BGS)	21-25	31-35	41-45	DUP 41-45	51-55	61-65
SAMPLE DATE	6/13/2011	6/13/2011	6/13/2011	6/13/2011	6/13/2011	6/13/2011
VOLATILES (µg/L)						
CHLOROFORM			*0.55 J*	*0.55 J*	*0.89 J*	*0.53 J*

TW421

SAMPLE DEPTH (FT BGS)	21-25	31-35	41-45	51-55	61-65
SAMPLE DATE	6/16/2011	6/16/2011	6/16/2011	6/16/2011	6/16/2011
VOLATILES (µg/L)					
1,1-DICHLOROETHANE		*3*			
1,1,1-TRICHLOROETHANE		*1.4*			
CHLOROFORM					*0.65 J*
TRICHLOROETHENE		***28***			

TW425

SAMPLE DEPTH (FT BGS)	21-25	31-35	41-45	51-55	61-65
SAMPLE DATE	6/14/2011	6/14/2011	6/14/2011	6/14/2011	6/14/2011
VOLATILES (µg/L)					
1,1-DICHLOROETHANE		*0.9 J*			
BROMOFORM			*2.6 J*		
CHLOROETHANE	*0.51 J*				
CHLOROFORM				*1.2*	*1*
CHLOROMETHANE	*0.77 J*	*0.61 J*			
ETHYL BENZENE		*0.72 J*			
M/P XYLENES		*1.4 J*			
TRICHLOROETHENE		*1.3*			
O-XYLENE		*2.7*			

TW435

SAMPLE DEPTH (FT BGS)	21-25	31-35	41-45	51-55	61-65	71-75
SAMPLE DATE	10/25/2011	10/25/2011	10/25/2011	10/25/2011	10/25/2011	10/25/2011
VOLATILES (µg/L)						
1,1-DICHLOROETHANE		*1.1*				
1,1,1-TRICHLOROETHANE				*1.4 J*		
ACETONE		*4.1*			*0.61 J*	
CHLOROFORM				*1.4 J*		
TRICHLOROETHENE		***16***				

TW424

SAMPLE DEPTH (FT BGS)	21-25	31-35	DUP 31 - 35	41-45	51-55	61-65
SAMPLE DATE	6/15/2011	6/15/2011	6/15/2011	6/15/2011	6/15/2011	6/15/2011
VOLATILES (µg/L)						
CHLOROFORM					*0.78 J*	*1.2*

TW436

SAMPLE DEPTH (FT BGS)	26-30	31-35	41-45	51-55	61-65	71-75
SAMPLE DATE	10/25/2011	10/25/2011	10/25/2011	10/25/2011	10/25/2011	10/25/2011
VOLATILES (µg/L)						
ACETONE		*15 J*				*12 J*

LEGEND

- MONITORING WELL LOCATION
- TEMPORARY WELL LOCATION
- SITE BOUNDARY

REFERENCE:
AERIAL PHOTOGRAPHS PROVIDED BY THE NYS GIS CLEARINGHOUSE, MARCH - MAY 2007

0 250 500
SCALE IN FEET

NYSDOH MCLs

	(µg/L)
1,1-DICHLOROETHANE	5
1,1,1-TRICHLOROETHANE	5
cis-1,2-DICHLOROETHENE	5
ACETONE	50
BROMOFORM	50
CHLOROETHANE	5
CHLOROFORM	50
CHLOROMETHANE	5
ETHYL BENZENE	5
M/P XYLENES	5
TRICHLOROETHENE	5
TOLUENE	5
TETRACHLOROETHENE	5
O-XYLENE	5

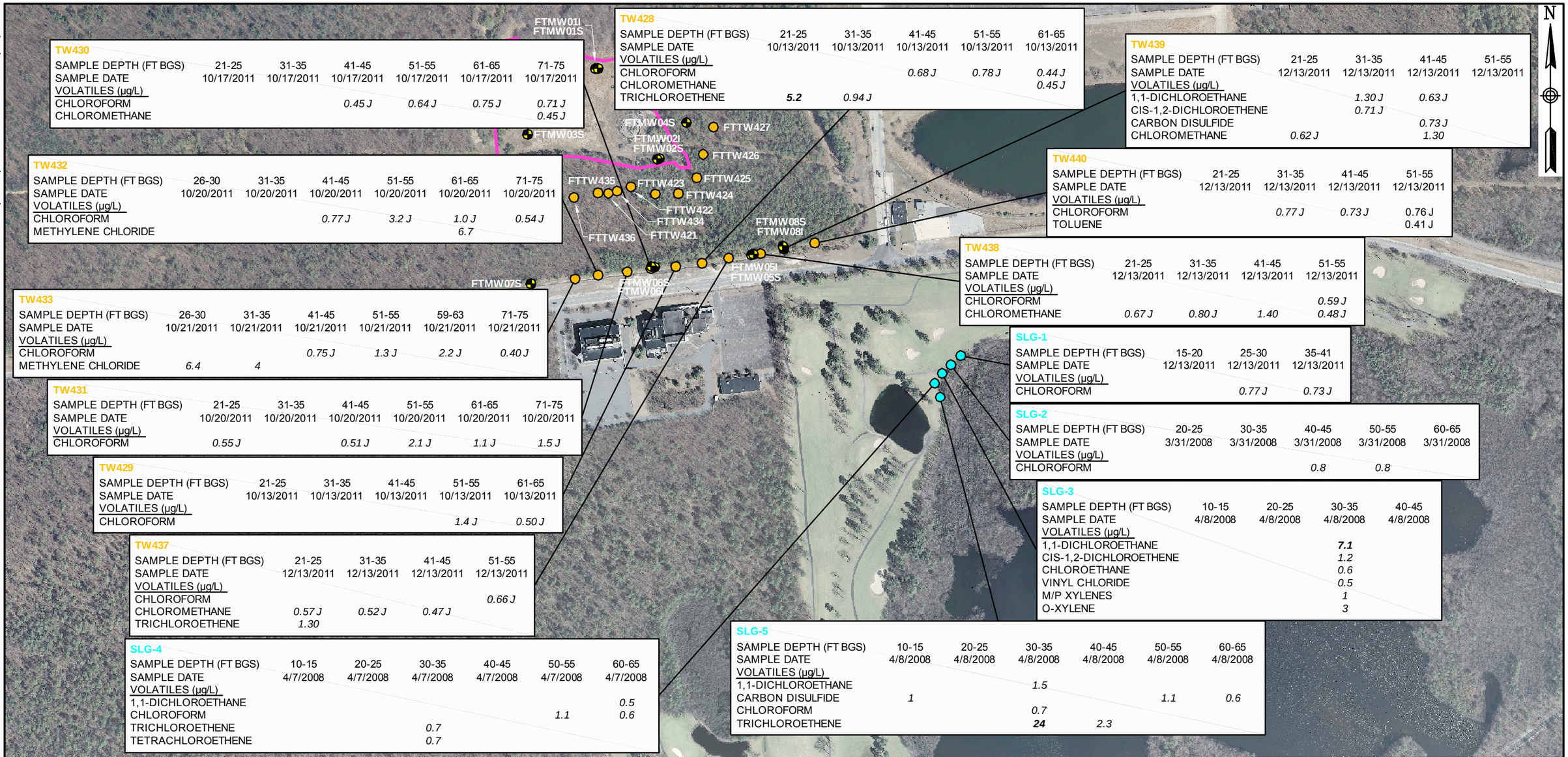
NOTES:
1. BLANK = NOT DETECTED
2. J = ESTIMATED VALUE.
3. FT BGS = FEET BELOW GROUND SURFACE
4. MCL - MAXIMUM CONTAMINANT LIMIT
5. NYSDOH = NEW YORK STATE DEPARTMENT OF HEALTH
6. µg/L = MICROGRAM PER LITER

TETRA TECH

ANALYTICAL RESULTS
TEMPORARY WELLS (SITE)
SITE 2 – FIRE TRAINING AREA
NWIRP CALVERTON
CALVERTON, NEW YORK

FILE	SCALE
112G02750GM07	AS NOTED
FIGURE NUMBER: FIGURE 4–3	REV 0 / DATE 07/05/12

112G02750\PP.DR\112G02750GM09.DWG 07/05/12 MKB



TW428

SAMPLE DEPTH (FT BGS)	21-25	31-35	41-45	51-55	61-65
SAMPLE DATE	10/13/2011	10/13/2011	10/13/2011	10/13/2011	10/13/2011
VOLATILES (µg/L)					
CHLOROFORM			*0.68 J*	*0.78 J*	*0.44 J*
CHLOROMETHANE					*0.45 J*
TRICHLOROETHENE	***5.2***	*0.94 J*			

TW430

SAMPLE DEPTH (FT BGS)	21-25	31-35	41-45	51-55	61-65	71-75
SAMPLE DATE	10/17/2011	10/17/2011	10/17/2011	10/17/2011	10/17/2011	10/17/2011
VOLATILES (µg/L)						
CHLOROFORM			*0.45 J*	*0.64 J*	*0.75 J*	*0.71 J*
CHLOROMETHANE						*0.45 J*

TW439

SAMPLE DEPTH (FT BGS)	21-25	31-35	41-45	51-55
SAMPLE DATE	12/13/2011	12/13/2011	12/13/2011	12/13/2011
VOLATILES (µg/L)				
1,1-DICHLOROETHANE		*1.30 J*	*0.63 J*	
CIS-1,2-DICHLOROETHENE		*0.71 J*		
CARBON DISULFIDE			*0.73 J*	
CHLOROMETHANE	*0.62 J*		*1.30*	

TW432

SAMPLE DEPTH (FT BGS)	26-30	31-35	41-45	51-55	61-65	71-75
SAMPLE DATE	10/20/2011	10/20/2011	10/20/2011	10/20/2011	10/20/2011	10/20/2011
VOLATILES (µg/L)						
CHLOROFORM			*0.77 J*	*3.2 J*	*1.0 J*	*0.54 J*
METHYLENE CHLORIDE					*6.7*	

TW440

SAMPLE DEPTH (FT BGS)	21-25	31-35	41-45	51-55
SAMPLE DATE	12/13/2011	12/13/2011	12/13/2011	12/13/2011
VOLATILES (µg/L)				
CHLOROFORM		*0.77 J*	*0.73 J*	0.76 J
TOLUENE				0.41 J

TW438

SAMPLE DEPTH (FT BGS)	21-25	31-35	41-45	51-55
SAMPLE DATE	12/13/2011	12/13/2011	12/13/2011	12/13/2011
VOLATILES (µg/L)				
CHLOROFORM				*0.59 J*
CHLOROMETHANE	*0.67 J*	*0.80 J*	*1.40*	*0.48 J*

TW433

SAMPLE DEPTH (FT BGS)	26-30	31-35	41-45	51-55	59-63	71-75
SAMPLE DATE	10/21/2011	10/21/2011	10/21/2011	10/21/2011	10/21/2011	10/21/2011
VOLATILES (µg/L)						
CHLOROFORM			*0.75 J*	*1.3 J*	*2.2 J*	*0.40 J*
METHYLENE CHLORIDE	*6.4*	*4*				

SLG-1

SAMPLE DEPTH (FT BGS)	15-20	25-30	35-41
SAMPLE DATE	12/13/2011	12/13/2011	12/13/2011
VOLATILES (µg/L)			
CHLOROFORM		*0.77 J*	*0.73 J*

TW431

SAMPLE DEPTH (FT BGS)	21-25	31-35	41-45	51-55	61-65	71-75
SAMPLE DATE	10/20/2011	10/20/2011	10/20/2011	10/20/2011	10/20/2011	10/20/2011
VOLATILES (µg/L)						
CHLOROFORM	*0.55 J*		*0.51 J*	*2.1 J*	*1.1 J*	*1.5 J*

SLG-2

SAMPLE DEPTH (FT BGS)	20-25	30-35	40-45	50-55	60-65
SAMPLE DATE	3/31/2008	3/31/2008	3/31/2008	3/31/2008	3/31/2008
VOLATILES (µg/L)					
CHLOROFORM			*0.8*	*0.8*	

TW429

SAMPLE DEPTH (FT BGS)	21-25	31-35	41-45	51-55	61-65
SAMPLE DATE	10/13/2011	10/13/2011	10/13/2011	10/13/2011	10/13/2011
VOLATILES (µg/L)					
CHLOROFORM				*1.4 J*	*0.50 J*

SLG-3

SAMPLE DEPTH (FT BGS)	10-15	20-25	30-35	40-45
SAMPLE DATE	4/8/2008	4/8/2008	4/8/2008	4/8/2008
VOLATILES (µg/L)				
1,1-DICHLOROETHANE			***7.1***	
CIS-1,2-DICHLOROETHENE			*1.2*	
CHLOROETHANE			*0.6*	
VINYL CHLORIDE			*0.5*	
M/P XYLENES			*1*	
O-XYLENE			*3*	

TW437

SAMPLE DEPTH (FT BGS)	21-25	31-35	41-45	51-55
SAMPLE DATE	12/13/2011	12/13/2011	12/13/2011	12/13/2011
VOLATILES (µg/L)				
CHLOROFORM				*0.66 J*
CHLOROMETHANE	*0.57 J*	*0.52 J*	*0.47 J*	
TRICHLOROETHENE	*1.30*			

SLG-5

SAMPLE DEPTH (FT BGS)	10-15	20-25	30-35	40-45	50-55	60-65
SAMPLE DATE	4/8/2008	4/8/2008	4/8/2008	4/8/2008	4/8/2008	4/8/2008
VOLATILES (µg/L)						
1,1-DICHLOROETHANE			*1.5*			
CARBON DISULFIDE	*1*				*1.1*	*0.6*
CHLOROFORM			*0.7*			
TRICHLOROETHENE			***24***	*2.3*		

SLG-4

SAMPLE DEPTH (FT BGS)	10-15	20-25	30-35	40-45	50-55	60-65
SAMPLE DATE	4/7/2008	4/7/2008	4/7/2008	4/7/2008	4/7/2008	4/7/2008
VOLATILES (µg/L)						
1,1-DICHLOROETHANE						*0.5*
CHLOROFORM					*1.1*	*0.6*
TRICHLOROETHENE			*0.7*			
TETRACHLOROETHENE			*0.7*			

LEGEND

- MONITORING WELL LOCATION
- TEMPORARY WELL LOCATION
- SUFFOLK COUNTY TEMPORARY WELL LOCATION
- SITE BOUNDARY

REFERENCE:
AERIAL PHOTOGRAPHS PROVIDED BY THE NYS GIS CLEARINGHOUSE, MARCH - MAY 2007

0 400 800
SCALE IN FEET

NYSDOH MCLs

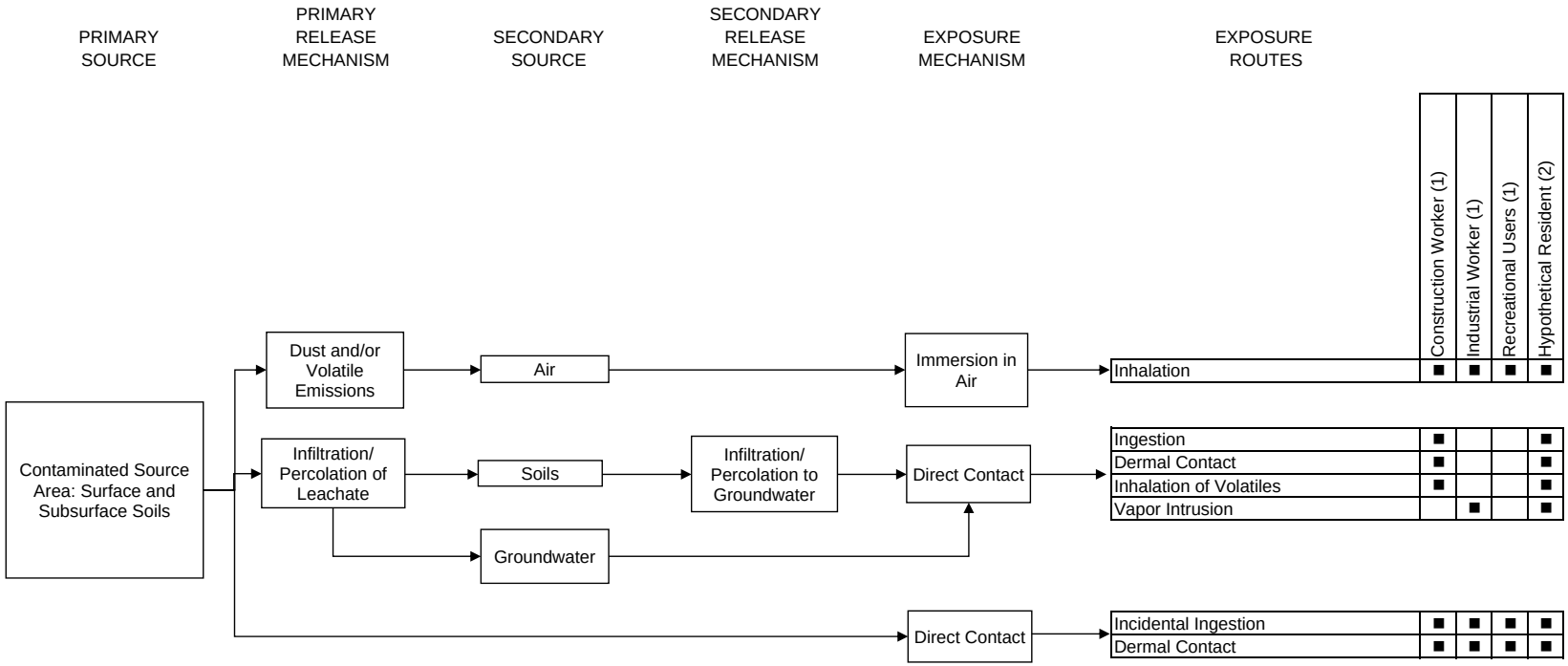
	(µg/L)
1,1-DICHLOROETHANE	5
1,1,1-TRICHLOROETHANE	5
CIS-1,2-DICHLOROETHENE	5
ACETONE	50
BROMOFORM	50
CARBON DISULFIDE	50
CHLOROETHANE	5
CHLOROFORM	50
CHLOROMETHANE	5
ETHYL BENZENE	5
M/P XYLENES	5
TRICHLOROETHENE	5
TOLUENE	5
TETRACHLOROETHENE	5
VINYL CHLORIDE	5
O-XYLENE	5

NOTES:
1. BLANK = NOT DETECTED
2. J = ESTIMATED VALUE.
3. FT BGS = FEET BELOW GROUND SURFACE
4. MCL - MAXIMUM CONTAMINANT LIMIT
5. NYSDOH = NEW YORK STATE DEPARTMENT OF HEALTH
6. µg/L = MICROGRAM PER LITER
7. BOLD ITALIC - EXCEEDS THE NYS DEPARTMENT OF HEALTH (DOH) MCL

TETRA TECH

ANALYTICAL RESULTS
TEMPORARY WELLS
SITE 2 – FIRE TRAINING AREA
NWIRP CALVERTON
CALVERTON, NEW YORK

FILE	SCALE
112G02750GM09	AS NOTED
FIGURE NUMBER: FIGURE 4-4	REV 0 / DATE 07/05/12



LEGEND

■ Exposure Pathway To Be Quantitatively Evaluated In The Risk Assessment

(1) Potential Receptor Under Future Land Use
(2) Potential (But Unlikely) Receptor Under Future Land Use. Evaluated For Decision-Making Purposes.

FIGURE 6-1

HUMAN HEALTH CONCEPTUAL SITE MODEL
SITE 2- FIRE TRAINING AREA
NWIRP CALVERTON, CALVERTON, NEW YORK

FIGURE 6-2
SUMMARY OF CUMULATIVE CANCER RISKS - REASONABLE MAXIMUM EXPOSURES
SITE 2 - FIRE TRAINING AREA
NWIRP CALVERTON
CALVERTON, NEW YORK

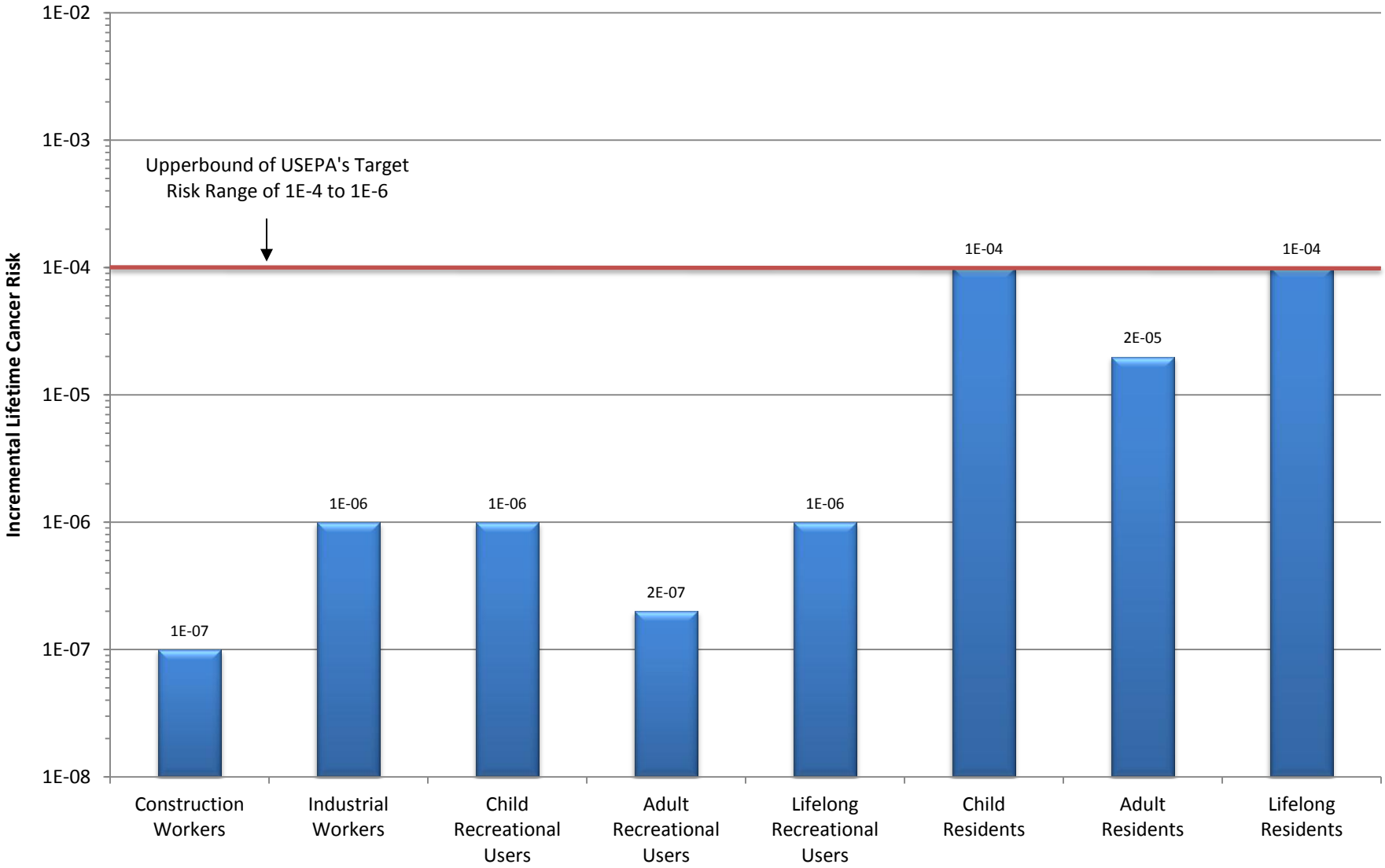


FIGURE 6-3
SUMMARY OF MEDIA-SPECIFIC CANCER RISKS - REASONABLE MAXIMUM EXPOSURES
SITE 2 - FIRE TRAINING AREA
NWIRP CALVERTON
CALVERTON, NEW YORK

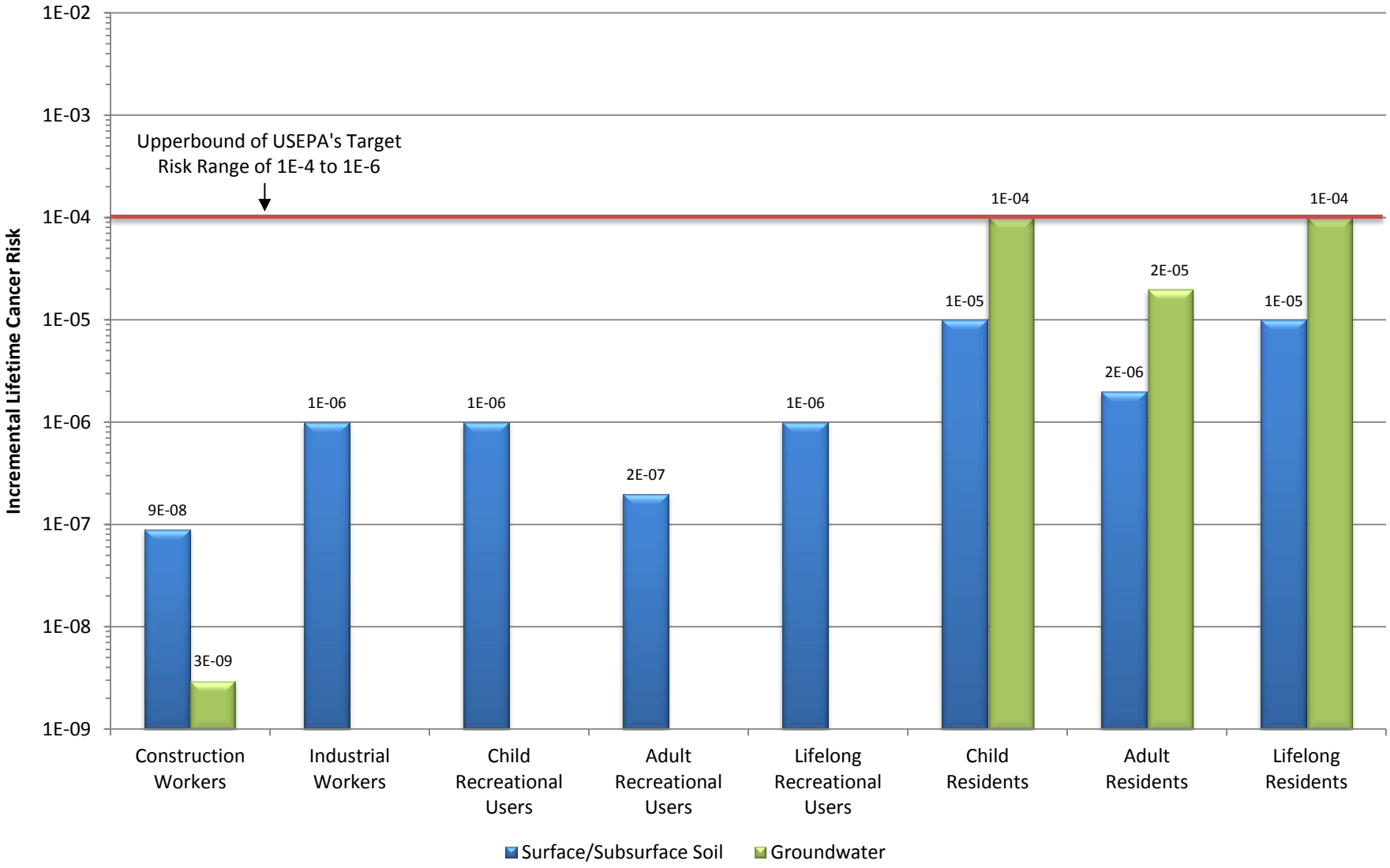


FIGURE 6-4
SUMMARY OF CUMULATIVE CANCER RISKS - CENTRAL TENDENCY EXPOSURES
SITE 2 - FIRE TRAINING AREA
NWIRP CALVERTON
CALVERTON, NEW YORK

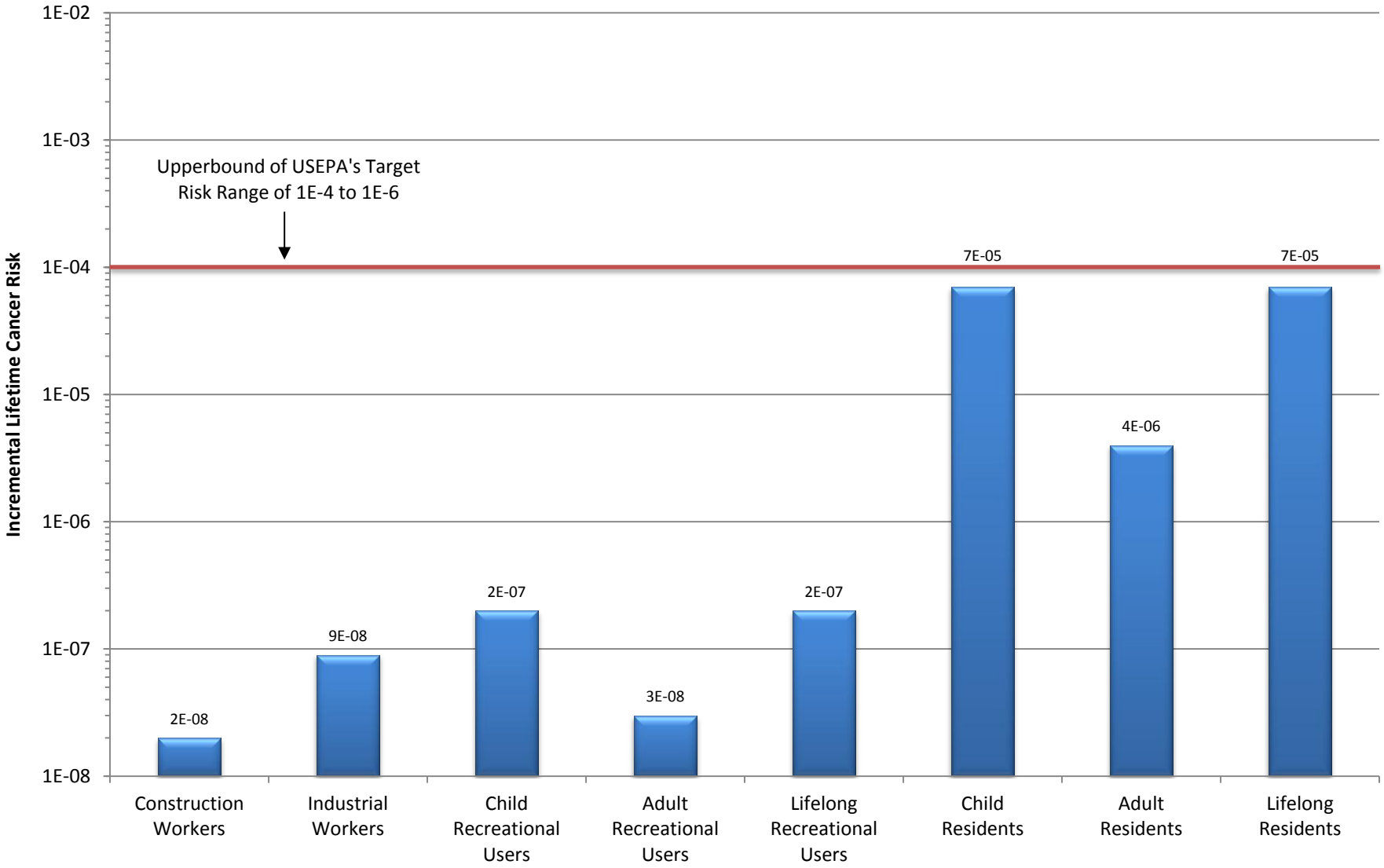
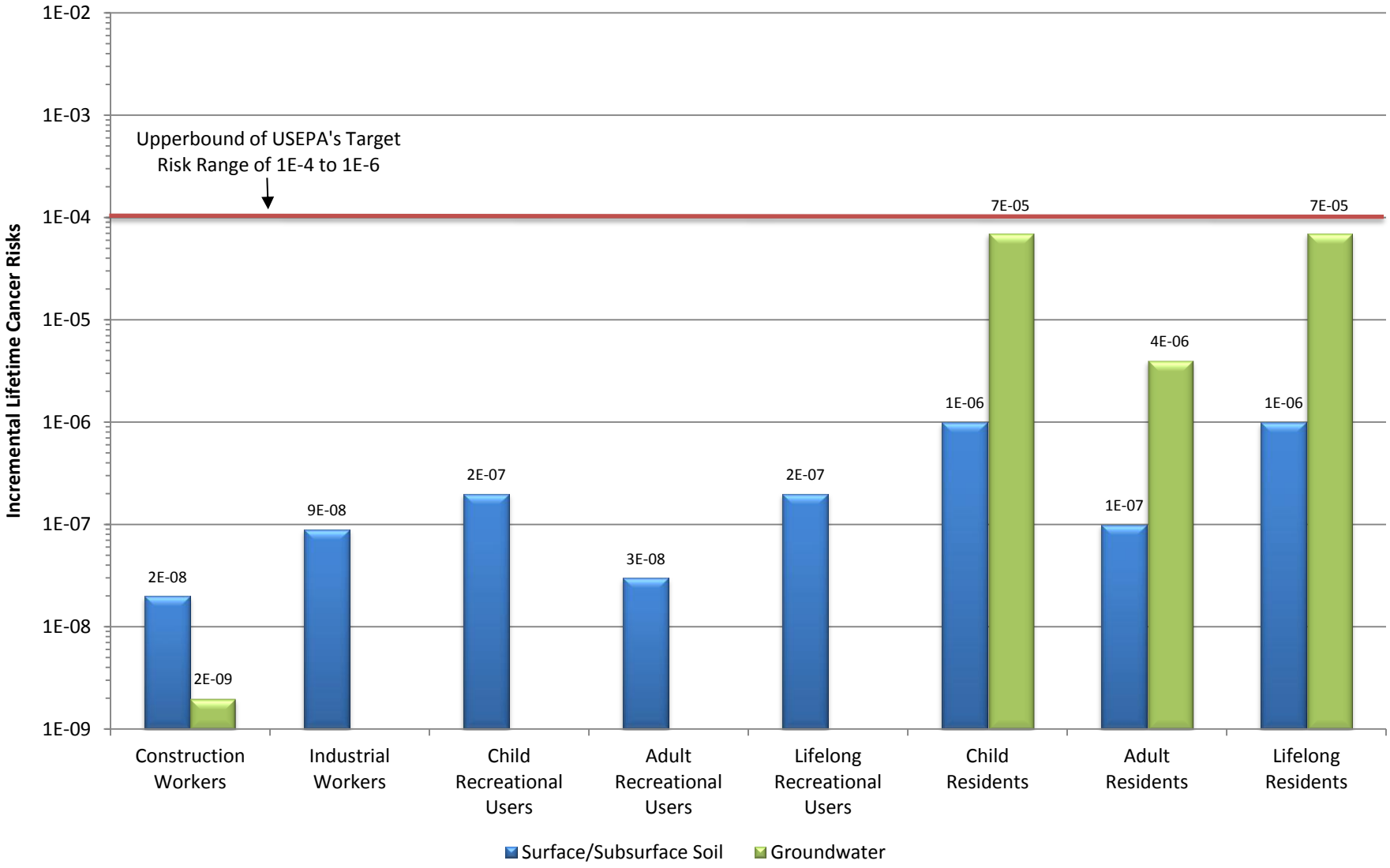


FIGURE 6-5
SUMMARY OF MEDIA-SPECIFIC CANCER RISKS - CENTRAL TENDENCY EXPOSURES
SITE 2 - FIRE TRAINING AREA
NWIRP CALVERTON
CALVERTON, NEW YORK



APPENDIX A

SOIL SAMPLING AND SOIL BORING LOGS

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: Calverton Site 2
Project No.: 112G02750

[] Surface Soil
[X] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Sample ID No.: FT-SB401-0608
Sample Location: SB401
Sampled By: J. Birkett
C.O.C. No.:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date: 10-18-11 Time: 0852 Method: Hand trowel Monitor Reading (ppm): 0.0	6-8' bgs	light brown	F-M sand tr. silt moist

COMPOSITE SAMPLE DATA:

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
VOCs	1 4 oz glass jar	yes	
PCB, PAHs-SVOCs, Metals ICP-TAL, Mercury	1 8 oz glass jar	yes	

OBSERVATIONS / NOTES:

No stains, odors, or elevated PID readings
Since no PID readings down to 8' bgs
- Sampled 6-8' bgs interval
- No magnetic anomalies

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:
—	—

Signature(s):

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: Calverton Site 2
Project No.: 112G02750

[] Surface Soil
[X] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Sample ID No.: FT-SB402-0608
Sample Location: SB402
Sampled By: J. Birkett
C.O.C. No.:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date: 10-19-11 Time: 0757 Method: Hand trowel Monitor Reading (ppm): 0.0	6-8' bgs	Tan	F-M sand tr. silt moist

COMPOSITE SAMPLE DATA:

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
VOC	1 4-oz jar	yes	
PCBs, SVOCs-PAHs, Metals ICP-TAL, mercury	1 8oz jar	yes	

OBSERVATIONS / NOTES:

No stains, odors, or elevated PID readings

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:
—	—

Signature(s):

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Page___ of ___

Project Site Name: Calverton Site 2
Project No.: 112G02750

[] Surface Soil
[X] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Sample ID No.: FT-SB403-0608
Sample Location: SB403
Sampled By: J. Birkett
C.O.C. No.:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date: 10-18-11 Time: 1455 Method: Hand trowel Monitor Reading (ppm): 0.0	6-8' bgs	tan	F-M sand and silt moist

COMPOSITE SAMPLE DATA:

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
VOCs	1 4 oz jar	yes	
PCB, PAHs-SVOCs, Metals ICP TAL, Mercury	1 8 oz jar	yes	

OBSERVATIONS / NOTES:

No stains, odors, or elevated PID readings

MAP:

Circle if Applicable:

MS/MSD —

Duplicate ID No.: FT-SBDup01-20111018 (1000)

Signature(s):

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: Calverton Site 2
Project No.: 112G02750

[] Surface Soil
[X] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Sample ID No.: FT-SB404-0305
Sample Location: SB404
Sampled By: J. Birkett
C.O.C. No.:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date: 10-19-11 Time: 0908 Method: Hand trowel Monitor Reading (ppm): 0.0	3-5' bgs	light brown	F-M sand tr. to some silt moist

COMPOSITE SAMPLE DATA:

	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date:				
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
VOCs	1 4 oz glass jar	yes	

OBSERVATIONS / NOTES:

No stains, odors, or elevated PID readings

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:
—	—

Signature(s):

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: Calverton Site 2
Project No.: 112G02750

[] Surface Soil
[X] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Sample ID No.: FT-SB404-0608
Sample Location: SB404
Sampled By: J. Birkett
C.O.C. No.:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date: 10-19-11 Time: 0915 Method: Hand trowel Monitor Reading (ppm): 0.0	6-8' bgs	tan	F-M sand tr. silt moist

COMPOSITE SAMPLE DATA:

	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date:				
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
VOCs	14oz glass jar	yes	

OBSERVATIONS / NOTES:

No stains or odors

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:
—	—

Signature(s):

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: Calverton Site 2
Project No.: 112G02750

[] Surface Soil
[X] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Sample ID No.: FT-SB405-0204
Sample Location: SB405
Sampled By: J. Birkett
C.O.C. No.:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date: 10-18-11 Time: 1326 Method: Hand trowel Monitor Reading (ppm): 0.0	2-4' bgs	Brown	F-M sand some silt tr. clay moist

COMPOSITE SAMPLE DATA:

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
VOCs	1 4 oz glass jar	yes	

OBSERVATIONS / NOTES:

No stains, odors, or elevated PID hits
Few small pieces of coal

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:
—	—

Signature(s):

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: Calverton Site 2
Project No.: 112G02750

[] Surface Soil
[X] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Sample ID No.: FT-SB405-0608
Sample Location: SB405
Sampled By: J. Birkett
C.O.C. No.:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date: 10-18-11 Time: 1342 Method: Hand trowel Monitor Reading (ppm): 0.0	6-8' bgs	tan	F-M sand tr. silt moist

COMPOSITE SAMPLE DATA:

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
VOC	4 oz. jar	Y	

OBSERVATIONS / NOTES:

No stains, odors, or elevated PID hits down to 8' bgs
· sample from 6-8' bgs

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:
—	—

Signature(s):

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: Calverton Site 2
Project No.: 112G02750

[] Surface Soil
[X] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Sample ID No.: FT-SB406-0406
Sample Location: SB406
Sampled By: J. Birkett
C.O.C. No.:

Type of Sample:
[] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date: 10-18-11 Time: 1005 Method: Hand trowel Monitor Reading (ppm): 8.9-4.3	4-6' bgs	tan	F-M sand tr. silt and pebbles

COMPOSITE SAMPLE DATA:

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
VOC	1 4 oz glass jar	yes	
PCBs, SVOCs-PAHs, Metals ICP-TAL; Mercury	1 8oz glass jar	yes	

OBSERVATIONS / NOTES:

No stains or odors, few low level PID reading
-No magnetic anomalies

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:
—	—

Signature(s):

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: Calverton Site 2
Project No.: 112G02750

[] Surface Soil
[X] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Sample ID No.: FT-SB407-0608
Sample Location: SB407
Sampled By: J. Birkett
C.O.C. No.:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date: 10-18-11 Time: 1205 Method: Hand trowel Monitor Reading (ppm): 0.0	6-8' bgs	tan	F-M sand tr. silt and pebbles moist

COMPOSITE SAMPLE DATA:

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
VOCs	2 4 oz glass jars	yes	
PCB, SVOCs-PAHs, Metals ICP-TAL, Mercury	2 8 oz glass jars	yes	

OBSERVATIONS / NOTES:

No stains, odors, or elevated PID readings
Since no PID reading down to 8' bgs
- Sample interval 6-8' bgs
- No magnetic anomalies

MAP:

Circle if Applicable:

MS/MSD yes

Duplicate ID No.:

Signature(s):

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: Calverton Site 2
Project No.: 112G02750

[] Surface Soil
[X] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Sample ID No.: FT-SB408-1517
Sample Location: SB408
Sampled By: J. Birkett
C.O.C. No.:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date: 10-19-11 Time: 1240 Method: Hand trowel Monitor Reading (ppm): 94.7-149.7	15-17' bgs	Brnish Black (Stained)	F-M sand tr. silt (Moist)

COMPOSITE SAMPLE DATA:

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
VOCs	1 4 oz glass jar	yes	
PAHs	1 8 oz glass jar	yes	

OBSERVATIONS / NOTES:

Stained soil and petroleum odor
- Staining starting at 14' bgs and ending at TD of boring

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:
—	—

Signature(s):

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: Calverton Site 2
Project No.: 112G02750

[] Surface Soil
[X] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Sample ID No.: FT-SB409-1315
Sample Location: SB409
Sampled By: J. Birkett
C.O.C. No.:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date: 10-19-11 Time: 1305 Method: Hand trowel Monitor Reading (ppm): 176-81	13-15' bgs	Tan w/Blk staining	F-M sand tr. silt moist

COMPOSITE SAMPLE DATA:

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
VOCs	1 4 oz glass jar	yes	
PAHs	1 8 oz glass jar	yes	

OBSERVATIONS / NOTES:

Stained soil and petroleum odor
- Staining starting at 10' bgs and ending at TD of boring

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:
—	—

Signature(s):

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: Calverton Site 2
Project No.: 112G02750

[] Surface Soil
[X] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Sample ID No.: FT-SB410-1416
Sample Location: SB410
Sampled By: J. Birkett
C.O.C. No.:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA: JB 10-19-11

	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date: ~~10-19-11~~ 10-19-11	14-16' bgs	tan	F-M sand tr. silt moist
Time: 1108			
Method: Hand trowel			
Monitor Reading (ppm): 0.0			

COMPOSITE SAMPLE DATA:

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
VOCs	1 4oz glass jar	yes	
PAHs	1 8oz glass jar	yes	

OBSERVATIONS / NOTES:

iron staining at 14' bgs
No odors or PID readings

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:
—	FT-SBDup02-20111019 (200) for VOCs only

Signature(s): J. Birkett

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: Calverton Site 2
Project No.: 112G02750

Sample ID No.: FT-SB411-0002
Sample Location: SB411
Sampled By: J. Birkett
C.O.C. No.:

[X] Surface Soil
[ ] Subsurface Soil
[ ] Sediment
[ ] Other:
[ ] QA Sample Type:

Type of Sample:
[X] Low Concentration
[ ] High Concentration

GRAB SAMPLE DATA:

	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date: 10-19-11 Time: 1217 Method: Hand trowel Monitor Reading (ppm): 0.0	0-2' bgs	Brown	Top soil and woody debris 0-6" Top soil and F-M sand 6"-2' bgs dry

COMPOSITE SAMPLE DATA:

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
PAHs, PCBs	1 8 oz glass jar	yes	

OBSERVATIONS / NOTES:

No stains or odors
Hand augered (No boring log)

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:
—	—

Signature(s):

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: NWIRP Calverton Site 2
Project No.: 112G02750

[] Surface Soil
[X] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Sample ID No.: FT-SB412-0204
Sample Location: SB412
Sampled By: J. Birkett
C.O.C. No.:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date: 10-19-11 Time: 1157 Method: Hand trowel Monitor Reading (ppm): 0-8.3	2-4' bgs	Brn to tan	F-M sand tr. to some silt moist

COMPOSITE SAMPLE DATA:

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
PAHs	1 8 oz glass jar	yes	

OBSERVATIONS / NOTES:

No staining, low level PID readings
Sample taken from macrocore sample

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:
—	—

Signature(s):

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: Calverton Site 2
Project No.: 112G02750

[] Surface Soil
[X] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Sample ID No.: FT-SB412-1214
Sample Location: SB412
Sampled By: J. Birkett
C.O.C. No.:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date: 10-19-11 Time: 1203 Method: Hand trowel Monitor Reading (ppm): 0	12-14' bgs	tan	F-M sand tr. silt moist to wet

COMPOSITE SAMPLE DATA:

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
VOCs	1 4 oz glass jar	yes	
PAHs, PCBs, ~~Metals~~ JB 10-19-11	1 8 oz glass jar	yes	

OBSERVATIONS / NOTES:

Sample taken directly water table at 14' bgs
No stains or odors

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:
—	—

Signature(s):

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: Calverton Site 2
Project No.: 112G02750

Sample ID No.: FT-SB413-0002
Sample Location: SB413
Sampled By: J. Birkett
C.O.C. No.:

[X] Surface Soil
[X] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date: 10-19-11 Time: 1120 Method: Hand trowel Monitor Reading (ppm): 0.0	0-2' bgs	Dark brown to brown	Top soil w/ F-M sand 0-6" F-M sand tr. to some silt 6"-2' bgs moist

COMPOSITE SAMPLE DATA:

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
VOCs	1 4oz glass jar	yes	
PAHs, PCBs, Metals	1 8oz glass jar	yes	

OBSERVATIONS / NOTES:

No stains or odors
- sample taken from macrocore

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:
—	—

Signature(s):

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: Calverton Site 2
Project No.: 112G02750

[] Surface Soil
[X] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Sample ID No.: FT-SB413-0810
Sample Location: SB413
Sampled By: J. Birkett
C.O.C. No.:

Type of Sample:
[X] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date: 6-19-11 Time: 1123 Method: Hand trowel Monitor Reading (ppm): 0.0	8-10' bgs	tan	F-M sand tr. silt and pebbles moist to wet

COMPOSITE SAMPLE DATA:

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
VOCs	1 4oz glass jar	yes	
PAHs, PCBs	1 8oz glass jar	yes	

OBSERVATIONS / NOTES:

Sample taken directly above water table ~10' bgs
· No stains or odors

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:
—	—

Signature(s):

Tetra Tech NUS, Inc.

BORING LOG

PROJECT NAME: Calverton
PROJECT NUMBER: 112G02750
DRILLING COMPANY: Zebra
DRILLING RIG: Geoprobe 6610

BORING No.: SB401
DATE: 10-18-11
GEOLOGIST: J. Birkett
DRILLER: L. Reiss

	Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm): Sample	Sampler BZ	Borehole**	Driller BZ**
0839	S-1	1		2.5/4		loose	DK Brn Brn	F-M sand and F. organics tr. silt; F-M sand tr. silt some roots		moist	0.4	0	0	0
		2				loose	DK Brn	F-M sand and F. organics tr. silt		moist				
		3				loose	Brn Gry	F-M sand tr. F. organics and silt		moist	0.0	0	0	0
		4				↓	↓	↓						
0849	S-2	5		3.5/4		m. dense	light Brn	F-M sand tr. silt		moist	0	0	0	0
						↓	↓	↓						
						↓	↓	↓		Collect Time 0852	0	0	0	0
		8				↓	↓	↓		FT-SB401-0608				
0859	S-3			3.5/4		m. dense	dk tan	F-M sand tr. silt		moist	0	0	0	0
		10				↓		↓						
						m. dense	tan	F-M sand tr. silt		moist	0	0	0	0
		12				↓	↓	↓						
0906	S-4			3.5/4		m. dense	tan	F-M sand tr. silt		moist	0	0	0	0
						↓	↓	↓						
		15				↓	↓	↓			0	0	0	0
		16				↓	↓	↓		moist	0	0	0	0
0913	S-5			3/4		m. dense	tan	F-M sand tr. silt		UXO tech lets				
						↓	↓	↓		push 4' starting at 16' bgs	0	0	0	0
						↓	↓	↓						
		20				↓	↓	↓			0	0	0	0
0919	S-6			2.5/4		m. dense	tan	F-M sand tr. silt		moist				
						↓	↓	↓			0	0	0	0
						↓	↓	↓						
		24				↓	↓	↓		wet	0	0	0	0
					EOB 24' bgs									

* When rock coring, enter rock brokeness.

** Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated reponse read.

Drilling Area Background (ppm): 0.0

Remarks: Continuous macrocore, screened by UXO every 2'
2" by 4' macrocores in 5' sleeves

Converted to Well: Yes ____ No X Well I.D. #: ____

Tetra Tech NUS, Inc.

BORING LOG

PROJECT NAME: Calverton Site 2
PROJECT NUMBER: 112G02750
DRILLING COMPANY: Zebra
DRILLING RIG: Geoprobe 6610
BORING No.: SB402
DATE: 10-19-11
GEOLOGIST: J. Birkett
DRILLER: L. Reiss

	Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm): Sample	Sampler BZ	Borehole**	Driller BZ**
0750	S-1	1		2.5/4		loose	Brn	Top soil and roots w/ F-M sand and organics		moist	0	0	0	0
						loose	DK Brn	F organics and F-M sand						
										moist	0	0	0	0
	S-	4				M. dense to loose	light to Brn	F-M sand some F. organics						
0755	S-2	5		3.5/4		M. dense	Brn	F-M sand tr. to some silt		moist	0	0	0	0
						↓	↓	↓	↓	Fr-SB402-0608 0757				
						M. dense	Tan	F-M sand tr. silt		moist	0	0	0	0
		8				↓	↓	↓	↓					
0805	S-3			3/4		M. dense	Tan	F-M sand tr silt		moist	0	0	0	0
		10				↓	↓	↓	↓					
										moist	0	0	0	0
		12				↓	↓	↓	↓					
0813	S-4			3/4		M. dense	Tan to Brn	F-M sand tr. silt		moist	0	0	0	0
						↓		↓	↓					
		15					Tan			moist	0	0	0	0
		16				↓		↓	↓					
0821	S-5			2.75/4		M. dense	Tan	F-M sand tr. silt		moist	0	0	0	0
						↓	↓	↓	↓					
										moist	0	0	0	0
		20				↓	↓	↓	↓					
0830	S-6			3/4		M. dense	tan	F-M sand tr. silt		moist	0	0	0	0
					▽	↓		↓	↓					
										moist	0	0	0	0
		24				↓		↓	↓					
					EOB 24 bgs									

* When rock coring, enter rock brokeness.

** Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated reponse read.

Drilling Area Background (ppm): 0.0

Remarks: Continuous macrocores, screened every 2' by UXO
2" x 4' macrocore samples in 5' liners
After 20' screened every 4' by UXO

Converted to Well: Yes ____ No X Well I.D. #: ____

Tetra Tech NUS, Inc.

BORING LOG

PROJECT NAME: Calverton Site 2
PROJECT NUMBER: 112G02750
DRILLING COMPANY: Zebra
DRILLING RIG: Geoprobe 6610
BORING No.: SB403
DATE: 10-18-11
GEOLOGIST: J. Birkett
DRILLER: L. Reiss

	Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm): Sample	Sampler BZ	Borehole**	Driller BZ**
1445	S-1	1		3/4		loose	DK Brn	F-M sand and organics wood frags		moist	0	0	0	0
						↓	↓	↓						
						↓	↓	↓			0	0	0	0
		4				m. dense	Brn	F-M sand tr. to some silt		moist				
1451	S-2	5		3/4		↓	↓	↓		FT-SB403-0608 1455	0	0	0	0
						m. dense	Tan	F-M sand tr. silt		moist				
						↓		↓		FT-SBDup01-20111018 1000	0	0	0	0
		8				↓		↓		moist				
1458	S-3			2.5/4		m. dense	Tan	F-M sand tr. silt			0	0	0	0
		10				↓	↓	↓		moist				
						↓	↓	↓			0	0	0	0
		12				↓	light Brn	↓		moist				
1505	S-4			3/4		m. dense	tan	F-M sand tr. silt			0	0	0	0
						↓	↓	↓		moist				
		15				↓	↓	↓			0	0	0	0
		16				↓	↓	↓						
1520	S-5			3.5/4		m. dense	tan	F-M sand tr. silt		moist	0	0	0	0
						↓	↓	↓						
						↓	↓	↓			0	0	0	0
		20				↓	↓	↓		wet				
					EOB 20' bgs									

* When rock coring, enter rock brokeness.

** Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated reponse read.

Remarks: Continuous macrocores, screened every 2' by UXO to 16' bgs
2" x 4' macrocore sample in 5' liner
Screen every 4' after 20' bgs to TD

Drilling Area Background (ppm): 0.0

Converted to Well: Yes ____ No X Well I.D. #: ____

Tetra Tech NUS, Inc.

BORING LOG

PROJECT NAME: Calverton Site 2
PROJECT NUMBER: 112G02750
DRILLING COMPANY: Zebra
DRILLING RIG: Geoprobe 6610

BORING No.: SB404
DATE: 10-19-11
GEOLOGIST: J. Birkett
DRILLER: L. Reiss

	Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm): Sample	Sampler BZ	Borehole**	Driller BZ**
0904	S-1	1		3.25/4		loose	Dk Brn	F. organics some F-M sand		moist	0	0	0	0
						m. dense	Brn	F-M sand tr. to some silt						
						↓	↓	↓	↓	moist 0908	0	0	0	0
0912	S-2	4				↓	↓	↓	↓	FT-SB404-0305				
	↓	5		3.25/4		m. dense	tan	F-M sand tr silt			0	0	0	0
						↓	↓	↓	↓	moist 0915				
										*FT-SB404-0603	0	0	0	0
		8				↓	↓	↓	↓	moist				
0924	S-3			3/4		m. dense	tan	F-M sand tr. silt			0	0	0	0
		10				↓	↓	↓	↓	moist				
						↓	↓	↓	↓		0	0	0	0
		12				↓	↓	↓	↓	moist	0.8	0	0	0
0934	S-4			3.25/4		m. dense	tan	F-M sand tr. silt			1.7	0	0	0
						↓	↓	↓	↓	moist	1.4	0	0	0
		15				↓	↓	↓	↓		0.8	0	0	0
		16				↓	↓	↓	↓					
0945	S-5			3/4		m. dense	tan	F-M sand tr. silt		moist	0	0	0	0
						↓	↓	↓	↓					
						↓	↓	↓	↓		0	0	0	0
		20				↓	↓	↓	↓					
0955	S-6			3.5/4		m. dense	tan	F-M sand tr. silt		moist	0	0	0	0
					▽	↓	↓	↓	↓					
						↓	↓	↓	↓	wet	0	0	0	0
		24				↓	↓	↓	↓	water table ~22'				
					EOB 24' bgs									

* When rock coring, enter rock brokeness.

** Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated reponse read.

Drilling Area Background (ppm): 0.0

Remarks: Continuous macrocore, screend by UXO every 2'
2" x 4' macrocore sample in 5' liner
Screened by UXO every 4' below 20' bgs

Converted to Well: Yes ____ No X Well I.D. #: ____

Tetra Tech NUS, Inc.

BORING LOG

PROJECT NAME: Calverton Site2
PROJECT NUMBER: 112G02750
DRILLING COMPANY: Zebra
DRILLING RIG: Geoprobe 6610

BORING No.: SB405
DATE: 10-18-11
GEOLOGIST: J. Birkett
DRILLER: L. Reiss

	Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm): Sample	Sampler BZ	Borehole**	Driller BZ**
1325	S-1	1		2.75/4		dense	Brn	Top soil and F-M sand w/organics and gravel		moist	0	0	0	0
						m. dense	Brn	FM sand some silt tr clay		coal pieces <5mm				
						↓		↓		FT-SB405-0204 1326	0	0	0	0
		4				m. dense	DK Brn	F-M sand some silt and organics		moist				
1340	S-2	5		3.25/4		↓		F-M sand tr. to some silt		large pebbles at 5' bgs	0	0	0	0
						M. dense	light brn	F-M sand tr. silt		Moist to wet				
						↓		↓		FT-SB405-0608 1342	0	0	0	0
		8				↓	tan	↓						
1352	S-3			2.75/4		m. dense	tan	F-M sand tr. silt		moist	0	0	0	0
		10				↓	↓	↓						
						↓	↓	↓		moist	0	0	0	0
		12				↓	↓	↓						
1406	S-4			3.5/4		m. dense	tan	F-M sand tr. silt		moist	0	0	0	0
						↓	↓	↓						
		15				↓	↓	↓		moist	0	0	0	0
		16				↓	↓	↓			0	0	0	0
1420	S-5			3/4		m. dense	tan	F-M sand tr. silt		moist				
						↓	↓	↓			0	0	0	0
						↓	↓	↓		moist				
		20			▽	↓	↓	↓			0	0	0	0

* When rock coring, enter rock brokeness.

** Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated reponse read.

Remarks: Continuous macrocore, screened every 2' by UXO
2" x 4' macrocore in 5' liner

Drilling Area Background (ppm): 0.0

Converted to Well: Yes ____ No X Well I.D. #: ____

Tetra Tech NUS, Inc.

BORING LOG

PROJECT NAME: Calverton Site 2
PROJECT NUMBER: 112G02750
DRILLING COMPANY: Zebra 6610
DRILLING RIG: Geoprobe

BORING No.: SB406
DATE: 10-18-11
GEOLOGIST: J. Birkett
DRILLER: L. Reiss

	Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm): Sample	Sampler BZ	Borehole**	Driller BZ**
		0												
0955	S-1	1		3.75/4		loose	Brn	F-M sand tr. silt and pebbles		Moist	0.0	0	0	0
						m. dense	DK Brn	F-M sand and F organics tr. silt						
										Moist	0.2	0	0	0
		4				M. dense	ORANGE BRN	F-M sand tr. to some silt		moist				
1002	S-2	5		3.5/4		M. dense	Tan	F-M sand tr. silt and pebbles			0	0	0	0
						↓	↓	↓		Collect FT-SB406-0406 1005	8.9	0	0	0
										moist				
	S-3	8				↓	↓	↓			4.3	0	0	0
1016	↓			3.75/4		M. dense	Tan	F-M sand tr. silt and pebbles		Moist				
		10				↓	↓	↓			0	0	0	0
						↓	↓	↓		moist	2.3	0	0	0
	S-	12				↓	↓	↓			0.5	0	0	0
1029	S-4			3.5/4		M. dense	Tan	F-M sand tr. silt		moist	1.5	0	0	0
						↓	↓	↓			0.3	0	0	0
		15					darker tan / light Brn	↓		moist				
		16				↓	↓				0	0	0	0
1045	S-5			3/4		M. dense	tan	F-M sand tr. silt		moist				
						↓		↓			1.6	0	0	0
										moist				
		20				↓		↓			2.4	0	0	0
1057	S-6			2.5/4		m. dense	tan	F-M sand tr. silt		moist	2.3	0	0	0
						↓		↓						
											2.1	0	0	0
		24			▽	↓		↓		wet	1.8	0	0	0
					EOB 24' bgs									

* When rock coring, enter rock brokeness.

** Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated reponse read.

Drilling Area Background (ppm): 0.0

Remarks: Continuous macrocore, screend by UXO tech every 2' to 20' bgs
2" x 4' macrocore samples in 5' screen
Discrete macrocore from 20-24 'bgs, UXO screened every 4'

Converted to Well: Yes _____ No X Well I.D. #: _____

Tetra Tech NUS, Inc.

BORING LOG

PROJECT NAME: Calverton
PROJECT NUMBER: 112G02750
DRILLING COMPANY: Zebra
DRILLING RIG: Geoprobe

BORING No.: SB407
DATE: 10-18-11
GEOLOGIST: J. Birkett
DRILLER: L. Reiss

	Sample No. and Type or RQD Depth	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm): Sample	Sampler BZ	Borehole**	Driller BZ**
S-1 1152	1			3.75/4		m. dense	Brn	Top soil w/roots and grass		moist	0	0	0	0
						m. dense	Brn	F-M sand tr to some silt and F. organics						
						m. dense	Blk	F-M sand and F. organics			0	0	0	0
S-2 1158	4					m. dense	orange Brn	F-M sand tr. to some silt		moist				
	5			3/4		m. dense	orange Brn	F-M sand tr to some silt			0	0	0	0
						↓	↓	↓	↓	moist				
						↓	↓	↓	↓	MSMS 1205 FT-SB407-0608	0	0	0	0
S	8					m. dense	tan	F-M sand tr. silt and pebbles		moist				
S-3 1208				2.75/4		m. dense	tan	F-M sand tr. silt			0	0	0	0
	10					↓		↓	↓	moist				
						↓		↓	↓		0	0	0	0
	12					↓		↓	↓	moist				
S-4 1231				3/4		m. dense	tan	F-M sand tr. silt		moist	0	0	0	0
						↓	↓	↓	↓					
	15					↓	↓	↓	↓	moist	0	0	0	0
	16			2.5/4		↓	↓	↓	↓					
S-5 1251				↓		m. dense	tan	F-M sand tr. silt		moist	0	0	0	0
						↓	↓	↓	↓					
						↓	↓	↓	↓	moist	0	0	0	0
	20					↓	↓	↓	↓					
					EOB 20' bgs									

* When rock coring, enter rock brokeness.

** Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated reponse read.

Drilling Area Background (ppm): 0.0

Remarks: Continuous macrocore, screened by UXO every 2' to 20' bgs
2" x 4' macrocore ~~liners~~ samples in 5' liners
Below 20' bgs UXO screend every 4'

Converted to Well: Yes _____ No X Well I.D. #: _____

Tetra Tech NUS, Inc.

BORING LOG

PROJECT NAME: Calverton Site 2
PROJECT NUMBER: 112G02750
DRILLING COMPANY: Zebra
DRILLING RIG: Geoprobe 6610
BORING No.: SB408
DATE: 10-19-11
GEOLOGIST: J. Birkett
DRILLER: L. Reiss

	Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm): Sample	Sampler BZ	Borehole**	Driller BZ**
1225	S-1	1		4/5		loose	Brn	Top soil and gravel		moist	0	0	0	0
						m. stiff	Brn	Clayey Gravely silt		Fill				
						↓	↓	↓			0	0	0	0
										moist				
1228	S-2	5				↓	↓	↓		Fill	0	0	0	0
	↓	↓		3/5		m. stiff	Brn	Clayey Gravely silt		Fill	0	0	0	0
						Brdense	Brn	F-M sand tr. silt and pebbles						
								↓			0	0	0	0
		10						↓		Black staining starting at 14'bgs	1.4	0	0	0
1231	S-3			3/5		m.dense	Brn Blk	F-M sand tr. silt			210	0	0	0
						↓	↓	↓						
										Staining	49.3	0	0	0
		15				↓	↓	↓			99.7	0	0	0
1236	S-4			3.5/5		m.dense	Brn Blk	F-M sand tr. silt		1240 FT-SB408-1517				
						↓	↓	↓		Staining	149.7	0	0	0
					▽									
		20				↓	↓	↓		Staining	43.1	0	0	0
					EOB 20'bgs									

* When rock coring, enter rock brokeness.

** Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated reponse read.

Remarks: Continuous 5'x2" macrocore samples to TD

Drilling Area Background (ppm): 0.0

Converted to Well: Yes ____ No X Well I.D. #: ____

Tetra Tech NUS, Inc.

BORING LOG

PROJECT NAME: Calverton Site 2
PROJECT NUMBER: 112G02750
DRILLING COMPANY: Zebra
DRILLING RIG: Geoprobe 6610

BORING No.: SB409
DATE: 10-19-11
GEOLOGIST: J. Birkett
DRILLER: L. Reiss

	Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm): Sample	Sampler BZ	Borehole**	Driller BZ**
1254	S-1	1		3.75/5		loose	Dk Brn	Top soil some gravel and sand		moist	0	0	0	0
						m. stiff	Brn	Clayey gravely silt and sand		Fill				
								*Fill material		moist	0	0	0	0
										Fill				
		5								Moist	0	0	0	0
1258	S-2			3/5						Black stained bands				
										Fill at 6' bgs	0	0	0	0
						m. dense	Tan	F-M sand tr. silt		moist				
											7.5	0	0	0
		10								moist	5.0	0	0	0
1301	S-3			3/5		m. dense	Tan w/ Blk staining	F-M sand tr. silt		petroleum odor				
										moist	59.7	0	0	0
										BLACK STAINING	176	0	0	0
									1305	From 12.5-15' bgs FT-SB409-1315	103	0	0	0
		15								moist to wet	81	0	0	0
					EOB 15' bgs									

* When rock coring, enter rock brokeness.

** Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated reponse read.

Remarks: Continuous macrocore (2"x5') to TD

Drilling Area Background (ppm): 0.0

Converted to Well: Yes ____ No X Well I.D. #: ____

Tetra Tech NUS, Inc.

BORING LOG

PROJECT NAME: Calverton Site 2
PROJECT NUMBER: 112G02750
DRILLING COMPANY: Zebra
DRILLING RIG: Geoprobe 6610

BORING No.: SB 410
DATE: 10-19-11
GEOLOGIST: J. Birleeff
DRILLER: L. Reiss

	Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm): Sample	Sampler BZ	Borehole**	Driller BZ**
1058	S-1	1		3.75/5		loose	DKBrn	Top Soil and F-M Sand		Moist	0	0	0	0
						M. dense	Brn	F-M sand tr. to some silt		moist				
											0	0	0	0
											0.2	0	0	0
		5				M. dense	Tan	F-M sand tr silt		Moist	0	0	0	0
1101	S-2			4/5		M. dense	Tan	F-M sand tr. silt		moist	0	0	0	0
						↓		↓						
										Moist	0	0	0	0
		10				↓		↓		moist	0	0	0	0
1103	S-3			3.5/5		M. dense	tan	F-M sand tr. silt		moist	0	0	0	0
						↓	↓	↓						
										Moist	0	0	0	0
										iron staining @ 14' bgs				
		15				↓	↓	↓		wet 1108	0	0	0	0
1107	S-4			3/5		M. dense	tan	F-M sand tr. silt		FT-SB410-1416	0	0	0	0
						↓	↓	↓		VOCs ~~MS/MSD~~ FT-SB DUP02-20111019				
										1200	0	0	0	0
		20				↓	↓	↓			0	0	0	0

* When rock coring, enter rock brokeness.

** Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated reponse read.

Remarks: Continuous macrocore samples to TD

Drilling Area Background (ppm): 0.0

Converted to Well: Yes ____ No X Well I.D. #: ____

Tetra Tech NUS, Inc.

BORING LOG

PROJECT NAME: Calverton Site 2
PROJECT NUMBER: 112G02750
DRILLING COMPANY: Zebra
DRILLING RIG: Geoprobe 6610

BORING No.: SB412
DATE: 10-19-11
GEOLOGIST: J. Birkett
DRILLER: L. Reiss

	Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm): Sample	Sampler BZ	Borehole**	Driller BZ**	
1155	S-1	1		3/5		loose	DK Brn	Wood frags and topsoil some F-M sand		Moist	0	0	0	0	
						m. dense	Brn	F-M sand tr. to some silt							
								↓ ↓		Moist	83	0	0	0	
						m. dense	tan	F-M sand tr. silt		FT-SB412-0204 1157	21	0	0	0	1157
		5						↓ ↓		Moist	0	0	0	0	
1158	S-2			3.5/5		m. dense	tan	F-M sand tr. silt		Moist	0	0	0	0	
						↓		↓							
										Moist	0	0	0	0	
		10				↓		↓ ↓		Moist	0	0	0	0	
1201	S-3			3.5/5		m. dense	tan	F-M sand tr. silt		moist	0	0	0	0	
						↓	↓	↓ ↓							
										1203	0	0	0	0	
					▽					FT-SB412-1214					
		15				↓	↓	↓ ↓		wet	0	0	0	0	
					EOB 15' bgs										

* When rock coring, enter rock brokeness.

** Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated reponse read.

Remarks: Continuous 2" x 5' macrocore samples to TD

Drilling Area Background (ppm): 0.0

Converted to Well: Yes ____ No X Well I.D. #: ____

Tetra Tech NUS, Inc.

BORING LOG

PROJECT NAME: Calverton Site 2
PROJECT NUMBER: 112G02750
DRILLING COMPANY: Zebra
DRILLING RIG: Geoprobe 6610

BORING No.: SB413
DATE: 10-19-11
GEOLOGIST: J. Birkeit
DRILLER: L. Reiss

	Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm): Sample	Sampler BZ	Borehole**	Driller BZ**
1118	S-1	1		2.25/5		loose	Dk Bra	Top soil w/ F-M sand		roots moist	0	0	0	0
						m. dense	Bra	F-M sand tr. to some silt		FT-SB413-0002 1120				
											0	0	0	0
						m. dense	Tan	F-M sand tr. silt		moist				
		5						tr. pebbles			0	0	0	0
1122	S-2			3/5		m. dense	Tan	F-M sand tr. silt			0	0	0	0
											0	0	0	0
										1128				
		10			∇			Same as above tr. pebbles		FT-SB413-0810	0	0	0	0
1126	S-3			3/5		m. dense	tan	F-M sand tr. silt		wet	0	0	0	0
										wet	0	0	0	0
		15								wet	0	0	0	0
					EOB 15' bgs									

* When rock coring, enter rock brokeness.

** Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated reponse read.

Remarks: Continuous 2" x 5' macrocores to TD

Drilling Area Background (ppm): 0.0

Converted to Well: Yes ____ No X Well I.D. #: ____

Tetra Tech NUS, Inc.

BORING LOG

PROJECT NAME: NWIRP CALVERTON
PROJECT NUMBER: 112G02750
DRILLING COMPANY: Zebra
DRILLING RIG: Geoprobe 7720 DT

BORING No.: SB-427
DATE: 4-7-11
GEOLOGIST: Vince Shickora
DRILLER: Charles Green

Time	Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm) Sample	Sampler BZ	Borehole**	Driller BZ**
1150	S-1	1					DK Brn	Silty Sand with leaves / roots		moist	0	0	0	0
		2					Org Brn	FGR to MGR Sand Trace CGR Sand and F pebbles						
		3									0	0	0	0
		4		39"			Tan							
		5		60"						moist	0	0	0	0
1155	S-2	6						Same as above						
		7					Tan				0	0	0	0
		8												
		9		50"							0	0	0	0
		10		60"			Tan	Same as above		moist				
1159	S-3	11									0	0	0	0
		12												
		13					Tan			moist	0	0	0	0
		14		51"										
		15		60"			Tan	Same as above		very moist	0	0	0	0
1203	S-4	16												
		17					Brn Tan				0	0	0	0
		18								very moist				
		19		52"							0	0	0	0
		20		60"			Tan	(same)		very moist				
1209	S-5	21									0	0	0	0
		22			▽		Brn Tan			wet ~ 22' BGS				
		23									0	0	0	0
		24		40"										
		25		60"			Brn Tan	Same as above		wet	0	0	0	0

* When rock coring, enter rock brokeness.

** Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated reponse read.

Drilling Area Background (ppm): 0

Remarks: 2"x 5' stainless macrocore sampler with Acetate liners

Converted to Well: Yes _____ No X Well I.D. #: _____

Tetra Tech NUS, Inc.

BORING LOG

PROJECT NAME: NWIRP Calverton
PROJECT NUMBER: 112G02750
DRILLING COMPANY: Zebra
DRILLING RIG: Geoprobe 7720 DT

BORING No.: FT-SB423
DATE: 4-7-11
GEOLOGIST: Vince Shickora
DRILLER: Charles Green

Time	Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm) Sample	Sampler BZ	Borehole**	Driller BZ**
1215	S-6	26					Tan	FGR to MGR Sand Trace CGR sand and F pebbles (micaceous)		wet	0	0	0	0
		27												
		28								wet	0	0	0	0
		29		34"			Brn Tan							
		30		60"				Same as above		wet	0	0	0	0
1227	S-7	31												
		32					Tan Brn	FGR to CGR Sand Trace F pebbles		wet	0	0	0	0
		33												
		34		37"						wet	0	0	0	0
		35		60"			Tan Brn							
	S-8	36									0	0	0	0
		37					Tan Brn	(same)		wet				
		38									0	0	0	0
		39		44"			Tan Brn	FGR to MGR Sand Trace CGR Sand (Micaceous)						
		40		60"						wet	0	0	0	0
1300	S-9	41												
		42									0	0	0	0
		43					Brn Tan			wet				
		44		43"							0	0	0	0
		45		60"				Same as above		wet				
1315	S-10	46					Brn				0	0	0	0
		47					Tan							
		48					Brn	FGR Sand - little MGR Sand (micaceous)		wet	0	0	0	0
		49		42"										
		50		60"						wet	0	0	0	0

* When rock coring, enter rock brokeness.

** Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated reponse read.

Remarks: (See page 1)

Drilling Area Background (ppm): 0

Converted to Well: Yes ____ No X Well I.D. #: ____

Tetra Tech NUS, Inc.

BORING LOG

PROJECT NAME: NWIRP Calverton
PROJECT NUMBER: 112G02750
DRILLING COMPANY: Zebra
DRILLING RIG: Geoprobe 7720 DT

BORING No.: FT-SB423
DATE: 4-7-11
GEOLOGIST: Vince Shickora
DRILLER: Charles Green

Time	Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm) Sample	Sampler BZ	Borehole**	Driller BZ**
1343	S-11	51					Brn	FGR Sand - little MGR Sand (micaceous)		wet	0	0	0	0
		52												
		53					Brn	FGR to MGR Sand Trace CGR Sand and Fpebbles (micaceous)		wet	0	0	0	0
		54		46"										
		55		60"						wet	0	0	0	0
1403	S-12	56												
		57					Brn			wet	0	0	0	0
		58												
		59		45"							0	0	0	0
		60		60"			Brn	Same as above		wet				
1424	S-13	61									0	0	0	0
		62												
		63					Brn			wet	0	0	0	0
		64		45"										
		65		60"			Brn	Same as above		wet	0	0	0	0
1445	S-14	66												
		67									0	0	0	0
		68					Brn			wet				
		69		47"							0	0	0	0
		70		60"			Brn	Same as above		wet				
1507	S-15	71									0	0	0	0
		72												
		73					Brn			wet	0	0	0	0
		74		40"										
		75		60"			Brn	Same as above		wet	0	0	0	0

* When rock coring, enter rock brokeness.

** Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated reponse read.

Remarks: (see page 1)

Drilling Area Background (ppm): 0

Converted to Well: Yes ____ No X Well I.D. #: ____

Tetra Tech NUS, Inc.

BORING LOG

PROJECT NAME: NWIRP Calverton
PROJECT NUMBER: 112G02045
DRILLING COMPANY: Zebra
DRILLING RIG: Geoprobe 7720 DT

BORING No.: FT-SB423
DATE: 4-7-11 / 4-8-11
GEOLOGIST: V. Shickora
DRILLER: Charles Green

Time	Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm) Sample	Sampler BZ	Borehole**	Driller BZ**
0812	S-16	76					Brn	FGR to MGR Sand Trace CGR Sand (micaceous)		wet	0	0	0	0
4/8/11		77												
		78					Brn	VFGR to FGR Sand Trace Silt		wet	0	0	0	0
		79		46"										
		80		60"			Gry	VFGR Sand - little silt (micaceous)		wet	0	0	0	0
0838	S-17	81												
		82									0	0	0	0
		83					Brn	VFGR Sand - Trace silt		wet				
		84									0	0	0	0
0912		85								wet				
					EoB									

* When rock coring, enter rock brokeness.

** Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated reponse read.

Remarks: (see page 1)

Drilling Area Background (ppm):

Converted to Well: Yes _____ No _____ Well I.D. #: _____

Tetra Tech NUS, Inc.

BORING LOG

PROJECT NAME: NWIRP CALVERTON
PROJECT NUMBER: 112G02750
DRILLING COMPANY: Zebra
DRILLING RIG: Geoprobe 7720DT

BORING No.: FT-SB426
DATE: 4-4-11
GEOLOGIST: Vince Shickora
DRILLER: Charles Green

Time	Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm) Sample	Sampler BZ	Borehole**	Driller BZ**
0935	S-1	1					Blk Brn	Silty Sand with some leaves, roots, etc		moist	0	0	0	0
		2												
		3					Brn Tan	FGR to MGR Sand Trace CGR Sand + Silt		moist	0	0	0	0
		4		37"			Tan	FGR Sand - Trace						
		5		60"			Brn	MGR Sand on Silt		moist	0	0	0	0
0939	S-2	6												
		7									0	0	0	0
		8					Tan Brn			moist				
		9		40"							0	0	0	0
		10		60"						moist				
0942	S-3	11					Tan Brn							
		12						Same as above			0.5	0	0	0
		13					Org Brn	FGR to MGR Sand little silt		very moist	0.8	0	0	0
		14		42"			wht	(lits)			1.1	0	0	0
		15		60"	▽		Tan	FGR Sand - Trace MGR Sand and Silt		wet ~ 14.8' BGS	1.0	0	0	0
0947	S-4	16									0	0	0	0
		17					Brn							
		18					Tan			wet	0	0	0	0
		19		41"										
		20		60"				Same as above		wet	0	0	0	0
0956	S-5	21					wht Tan	FGR to MGR Sand - Trace CGR Sand + fine pebbles		wet	0	0	0	0
		22												
		23					Brn				0	0	0	0
		24		57"			Tan							
		25		60"				Same as above		wet	0	0	0	0

* When rock coring, enter rock brokeness.

** Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated reponse read.

Drilling Area Background (ppm): 0

Remarks: 2" x 5' Stainless macrocore sampler with Acetate liners

Converted to Well: Yes _____ No X Well I.D. #: _____

Tetra Tech NUS, Inc.

BORING LOG

PROJECT NAME: NWIRP Calverton
PROJECT NUMBER: 112G02750
DRILLING COMPANY: Zebra
DRILLING RIG: Geoprobe 7720DT

BORING No.: FT-SB426
DATE: 4-4-11 / 4-6-11
GEOLOGIST: Vince Shickora
DRILLER: Charles Green

Time	Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm) Sample	Sampler BZ	Borehole**	Driller BZ**
4/6/11 1323	S-6	26					Brn Tan	FGR to MGR Sand-Trace CGR sand + Fine pebbles (Micaceous)		wet	0	0	0	0
		27												
		28								wet	0	0	0	0
		29		40"			Brn Tan							
		30		60"						wet	0	0	0	0
1339	S-7	31					Brn Tan	Same as above						
		32									0	0	0	0
		33								wet				
		34		34"			Brn Tan				0	0	0	0
		35		60"				(Same)		wet				
1350	S-8	36									0	0	0	0
		37					Brn Tan							
		38								wet	0	0	0	0
		39												
		40		41"			Brn Tan	Same as above		wet	0	0	0	0
1403	S-9	41		60"										
		42								wet	0	0	0	0
		43					Brn Tan							
		44		40"						wet	0	0	0	0
		45		60"			Brn Tan	Same as above						
1415	S-10	46									0	0	0	0
		47								wet				
		48									0	0	0	0
		49		43"										
		50		60"				Same as above		wet	0	0	0	0

* When rock coring, enter rock brokeness.

** Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated reponse read.

Remarks: (see page 1)

Drilling Area Background (ppm): 0

Converted to Well: Yes ____ No X Well I.D. #: ____

Tetra Tech NUS, Inc.

BORING LOG

PROJECT NAME: NWIRP Calverton
PROJECT NUMBER: 112G02750
DRILLING COMPANY: Zebra
DRILLING RIG: Geoprobe 7720 DT

BORING No.: FT-SB426
DATE: 4-6-11 / 4-7-11
GEOLOGIST: Vince Shickora
DRILLER: Charles Green

Time	Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm) Sample	Sampler BZ	Borehole**	Driller BZ**
1433	S-11	51					Brn Tan	FGR to MGR Sand Trace CGR Sand (micaceous)		wet	0	0	0	0
		52												
		53								wet	0	0	0	0
		54		39"			Brn Tan							
		55		60"				Same as above		wet	0	0	0	0
1450	S-12	56												
		57									0	0	0	0
		58								wet				
		59		41"			Brn Tan				0	0	0	0
		60		60"				Same as above		wet				
1514	S-13	61									0	0	0	0
		62												
		63					Brn Tan			wet	0	0	0	0
4/6/11		64		43"										
1540		65		60"				Same as above		wet	0	0	0	0
4/7/11 0937	S-14	66					Brn Tan							
		67									0	0	0	0
		68								wet				
		69		40"	- - -		Brn Tan	Same as above			0	0	0	0
		70		60"			Brn	VFGR to FGR Sand Trace Silt (micaceous)						
1000	S-15	71								wet	0	0	0	0
		72					Brn							
		73									0	0	0	0
		74		41"										
		75		60"	- - -		Gry	Silt - Trace clay and VFGR Sand		wet	0	0	0	0

* When rock coring, enter rock brokeness.

** Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated reponse read.

Remarks: (see page 1)

Drilling Area Background (ppm): 0

Converted to Well: Yes _____ No X Well I.D. #: _____

Tetra Tech NUS, Inc.

BORING LOG

PROJECT NAME: NWIRP Calverton
PROJECT NUMBER: 112G02045
DRILLING COMPANY: Zebra
DRILLING RIG: Geoprobe 7720 DT
BORING No.: FT-SB426
DATE: 4-7-11
GEOLOGIST: V. Shickora
DRILLER: Charles Green

Time	Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm): Sample	Sampler BZ	Borehole**	Driller BZ**
1030	S-16	76					Gry	Silt- Trace clay and VFGR Sand		wet	0	0	0	0
		77						↓						
1052		78								wet	0	0	0	0
		79			refusal									
	↓	80			EOB									

* When rock coring, enter rock brokeness.

** Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated reponse read.

Remarks: (see page 1)

Drilling Area Background (ppm): 0

Converted to Well: Yes _____ No X Well I.D. #: _____

Tetra Tech NUS, Inc.

BORING LOG

PROJECT NAME: NWIRP Calverton
PROJECT NUMBER: 112G02750
DRILLING COMPANY: Zebra
DRILLING RIG: Geoprobe 6620 DT

BORING No.: FT-PZ451
DATE: 12-12-11
GEOLOGIST: J. Birkett
DRILLER: J. Diamond

Time	Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm): Sample	Sampler BZ	Borehole**	Driller BZ**
1335	S-1			30/60"		loose	Blk Brn	F-M sand some F organics tr. silt		moist	0	0	0	0
						m. dense	Brn	F-M sand some silt						
						↓	↓	↓ tr. C. sand ↓		moist	0	0	0	0
		5				m. dense	tan	F-M sand tr. silt and C. sand		moist	0	0	0	0
1340	S-2			31/60"		m. dense	tan	F-M sand tr. silt and sm-med pebbles		Moist	0	0	0	0
					▽					moist to wet				
						m. dense	Brn tan	F-M sand tr. silt, C. sand		wet	0	0	0	0
						↓	↓	↓ and sm-lg pebbles ↓		iron staining ~2' bgs				
		10								wet	0	0	0	0
					EOB 10' bgs									

* When rock coring, enter rock brokeness.

** Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated reponse read.

Drilling Area Background (ppm): 0.0

Remarks: Continuous macrocore in 2"x5' acetate sleeve to TD

Converted to Well: Yes X No _____ Well I.D. #: FT-PZ451

Tetra Tech NUS, Inc.

BORING LOG

PROJECT NAME: NWIRP Calverton
PROJECT NUMBER: 112G02750
DRILLING COMPANY: Zebra
DRILLING RIG: Geoprobe 6620 DT

BORING No.: FT-PZ452
DATE: 12-12-11
GEOLOGIST: J. Birkett
DRILLER: J. Diamond

Time	Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm) Sample	Sampler BZ	Borehole**	Driller BZ**
		0												
1431	S-1			37/60"		loose	Brn	Silty F sand and Fr organics		moist w/ roots	0	0	0	0
						loose	Dk Brn	F sand some silt and M. sand						
						loose	Light Brn	F-M sand tr. silt		moist				
						m. dense	DK Brn	F-M sand some silt						
						m. dense	tan	F-C sand tr. sm.-med pebbles		moist	0	0	0	0
						m. dense	DK Gray	F sand some silt		moist				
						m. dense	Gray	F. sand tr. silt						
		5				m. dense	Brn tan	F-M sand tr. silt and C. sand		moist	0	0	0	0
1434	S-2			23/60"		m. dense	tan	F-M sand some C. sand tr. silt		moist	0	0	0	0
										roots at 8' bgs				
					.52		tan gray	F-M sand tr. silt		wet	0	0	0	0
										wet				
		10					gray			wet	0	0	0	0
					EOB 10' bgs									

* When rock coring, enter rock brokeness.

** Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated reponse read.

Remarks: Continuous macrocore in 2" x 5' acetate liner to TD

Drilling Area Background (ppm): 0.0

Converted to Well: Yes X No _____ Well I.D. #: FT-PZ

Tetra Tech NUS, Inc.

BORING LOG

PROJECT NAME: NWIRP Calverton
PROJECT NUMBER: 112G02750
DRILLING COMPANY: Zebra
DRILLING RIG: Geoprobe 6620DT

BORING No.: FT-PZ453
DATE: 12-12-11
GEOLOGIST: J. Birkett
DRILLER: J. Diamond

Time	Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm) Sample	Sampler BZ	Borehole**	Driller BZ**
1055	S-1	0		36/60"		M. dense	Brn	Silt some F-M sand and F organics		Moist	0	0	0	0
						M. dense	light Brn	F-M sand some silt tr. C. sand and sm.-med. pebbles		Moist				
						↓	↓	↓			0	0	0	0
										1" silt layer at ~4' bgs				
		5				M. dense	Brn Gray	F-M sand tr. silt		wet	0	0	0	0
1052	S-2			39/60"		M. dense	Brn	F-M sand tr. silt		wet	0	0	0	0
						↓	tan	F-M sand and F organics						
						M. dense	Blk			wet				
						↓	↓	F-M sand and F. organics (peat)		Peat in small layers <1"	0	0	0	0
						M. dense	tan	F-M sand tr. C. sand		wet				
		10				↓	↓ Blk	↓ Peat ↓		Peat (3") in cutting shoe	0	0	0	0
					EOB 10' bgs									

* When rock coring, enter rock brokeness.

** Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated reponse read.

Remarks: Continuous macrocore in 2" x 5' acetate liner to TD

Drilling Area Background (ppm): 0.1

Converted to Well: Yes X No ____ Well I.D. #: FT-PZ453

Tetra Tech NUS, Inc.

BORING LOG

PROJECT NAME: NWIRP Calverton
PROJECT NUMBER: 112G02750
DRILLING COMPANY: Zebra
DRILLING RIG: Geoprobe 6620 DT

BORING No.: FT-PZ454
DATE: 12-12-11
GEOLOGIST: J. Birkett
DRILLER: J. Diamond

Time	Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm): Sample	Sampler BZ	Borehole**	Driller BZ**
		0												
1003	S-1			25/60"		stiff	Dk Brn	Silt some F. sand tr. clay and pebbles		Fill moist	0	0	0	0
						loose	Blk	F sand and F. organics, tr. M. sand		Moist				
						loose	tan	F-M sand tr. silt		moist	0	0	0	0
						m. dense	Brn	F-M sand some silt tr. C. sand		moist				
		5			▽						0	0	0	0
1007	S-2			34/60"		loose	light Brn	F-C sand some sm.-mod pebbles tr. silt		wet	0	0	0	0
						m. dense	tan	F-M sand tr. silt and C. sand		wet	0	0	0	0
		10									0	0	0	0
					EOB 10' bgs									

* When rock coring, enter rock brokeness.

** Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated reponse read.

Remarks: Continuous macrocore in 2" x 5" acetate sleeve to TD

Drilling Area Background (ppm): 0.0

Converted to Well: Yes X No ____ Well I.D. #: FT-PZ454

Tetra Tech NUS, Inc.

BORING LOG

PROJECT NAME: NWIRP Calverton
PROJECT NUMBER: 112G02750
DRILLING COMPANY: Zebra
DRILLING RIG: Geoprobe 6620DT

BORING No.: FT-PZ455I
DATE: 12-5-11
GEOLOGIST: J. Birkett
DRILLER: J. Diamond

Time	Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm): Sample	Sampler BZ	Borehole**	Driller BZ**
		0												
0930	S-1			35/60"		loose	Brn	F-M sand and organics		moist	0.1	0	0	0
						loose	Brn	F-M sand tr. some silt and C. sand		moist				
											0	0	0	0
						m. dense	dk tan	F-M sand tr. silt, C. sand, and pebbles		moist				
		5				↓		↓ ↓			0	0	0	0
0933	S-2			35/60"		m. dense	dk tan	F-M sand tr. silt		moist	0	0	0	0
						↓	↓	↓ ↓						
										moist	0	0	0	0
		10				↓	↓	↓ ↓		moist	0	0	0	0
0936	S-3			35/60"		m. dense	tan	F-M sand tr. silt		moist	0	0	0	0
						↓	↓	↓ ↓						
										moist	0	0	0	0
		15				↓	↓	↓ ↓		moist	0	0	0	0
0943	S-4			28/60"		m. dense	tan	F-M sand tr. silt		moist	0	0	0	0
						↓	↓	↓ ↓						
						↓	↓	↓ ↓		moist	0	0	0	0
						dense		F sand tr. M sand and silt						
		20				↓	↓	↓ ↓		moist	0	0	0	0
0952	S-5			30/60"		m. dense	tan	F-M sand tr. silt		moist	0	0	0	0
						↓	↓	↓ ↓						
										moist	0	0	0	0
		25				↓	↓	↓ ↓		moist	0	0	0	0

* When rock coring, enter rock brokeness.

** Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated reponse read.

Drilling Area Background (ppm): 0.0

Remarks: Continuous macrocore in 2" x 5' sleeves to 30' bgs
Discrete macrocores from 30' bgs to TD (74' bgs)

Converted to Well: Yes X No ____ Well I.D. #: FT-PZ455I

Tetra Tech NUS, Inc.

BORING LOG

PROJECT NAME: NWIRP Calverton
PROJECT NUMBER: 112G02750
DRILLING COMPANY: Zebra
DRILLING RIG: Geoprobe 6620DT

BORING No.: FT-PZ455I
DATE: 12-5-11
GEOLOGIST: J. Birkett
DRILLER: J. Diamond

Time	Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm) Sample	Sampler BZ	Borehole**	Driller BZ**
		25												
1008	S-6			25/60"		m. dense	tan	F-M sand tr. C. sand and silt		moist	0	0	0	0
					▽					Water table ~27' bgs				
										wet	0	0	0	0
		30								wet	0	0	0	0
1040	S-7			14/60"		m. dense	dk tan gray	F-M sand tr. silt		wet	0	0	0	0
										wet	0	0	0	0
		35								wet	0	0	0	0
1110	S-8			48/60		M. dense	light Brn	F-M sand tr. silt and C. sand		wet	0	0	0	0
										wet	0	0	0	0
		40								wet	0	0	0	0
1210*	S-9			40/60"		m. dense	light Brn	F-M sand tr. silt		wet	0	0	0	0
										*liner stuck in macrocore				
										wet	0	0	0	0
		45								wet	0	0	0	0
1318*	S-10			60/60"		m. dense	light Brn	F-M sand tr. silt		wet	0	0	0	0
										* problems w/ drive cap				
										wet	0	0	0	0
		50								wet	0	0	0	0

* When rock coring, enter rock brokeness.

** Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated reponse read.

Remarks: See first page for details

Drilling Area Background (ppm): 0.0

Converted to Well: Yes X No ____ Well I.D. #: FT-PZ455I

Tetra Tech NUS, Inc.

BORING LOG

PROJECT NAME: NWIRP Calverton
PROJECT NUMBER: 112G02750
DRILLING COMPANY: Zebra
DRILLING RIG: Geoprobe 6620 DT

BORING No.: FT-PZ455I
DATE: 12-5-11
GEOLOGIST: J. Birkett
DRILLER: J. Diamond

Time	Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm): Sample	Sampler BZ	Borehole**	Driller BZ**
		50												
1403	S-11			58/60"		m. dense	tan	F-M sand tr. silt		wet	0	0	0	0
										wet	0	0	0	0
		55								wet	0	0	0	0
1445	S-12			60/60"		m. dense	tan	F-M sand tr. silt		wet	0	0	0	0
										wet	0	0	0	0
										2" thick DK Brn layer				
		60								wet at 18.5'	0	0	0	0
1530	S-13			58/60"		m. dense	light Brn	F-M sand tr. silt		wet	0	0	0	0
										wet	0	0	0	0
										wet				
		65									0	0	0	0
12-5-11 12-6-11 0910	S-14			60/60"		M. dense	light Brn gray	F-M sand tr. silt (little mica)		wet	0	0	0	0
										wet	0	0	0	0
		70								wet	0	0	0	0
1010*	S-15			60/60"		M. dense	light Brn gray	F-M sand tr. silt (some mica)		wet	0	0	0	0
										*liner jammed				
										wet	0	0	0	0
		75								wet	0	0	0	0

* When rock coring, enter rock brokeness.

** Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated reponse read.

Remarks: See first page for details

Drilling Area Background (ppm): 0.0

Converted to Well: Yes X No ____ Well I.D. #: FT-PZ455I

Tetra Tech NUS, Inc.

BORING LOG

PROJECT NAME: NWIRP Calverton
PROJECT NUMBER: 112G02750
DRILLING COMPANY: Zebra
DRILLING RIG: Geoprobe 6620 DT

BORING No.: FT-PZ455I
DATE: 12-6-11
GEOLOGIST: J. Birkett
DRILLER: J. Diamond

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm): Sample	Sampler BZ	Borehole**	Driller BZ**
Time	75												
S-16			50/60"		Dense	Brn	Silty VF Sand (mica rich)		wet	0	0	0	0
									wet	0	0	0	0
	79									0	0	0	0
				EOB 79' bgs									

* When rock coring, enter rock brokeness.

** Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated reponse read.

Remarks: See first page for details

Drilling Area Background (ppm): 0.0

Converted to Well: Yes X No _____ Well I.D. #: FT-PZ455I

Tetra Tech NUS, Inc.

BORING LOG

PROJECT NAME: NWIRP Calverton
PROJECT NUMBER: 112G02750
DRILLING COMPANY: Zebra
DRILLING RIG: Geoprobe 6620 DT

BORING No.: FT-PZ456I
DATE: 12-8-11
GEOLOGIST: J. Birkett
DRILLER: J. Diamond

Time	Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm) Sample	Sampler BZ	Borehole**	Driller BZ**
		0												
0942	S-1			28/60"		loose	DK Brn	organics and roots		moist	0.7	0	0	0
						loose	Gray Brn	F-M sand tr. silt		moist	0.2	0	0	0
						M. dense	Brn	F-M sand some silt tr. C. sand		moist	0	0	0	0
						↓	light Brn	↓						
		5				M. dense	tan	F-C sand and sm. to med pebbles		moist	0	0	0	0
0946	S-2			32/60"	SL	M. dense	tan gray	F-M sand tr. silt		water table ~5' bgs	0	0	0	0
						↓	↓	↓ very few small pebbles ↓		wet				
											0	0	0	0
										wet				
		10				↓	↓	↓			0	0	0	0
0950	S-3			32/60"		M. dense	tan gray	F-M sand tr. silt and C. sand		(lighter color than 5-10' bgs)	0	0	0	0
						↓	↓	↓ (little mica) ↓		wet				
						↓	↓	↓		wet	0	0	0	0
						dense	gray	Silty F. sand (micaceous)						
		15				M. dense	tan gray	F-M sand tr. silt (micaceous)		wet	0	0	0	0
1000	S-4			50/60		M. dense	tan gray	F-M sand tr. silt (micaceous)		~1 ft slough in upper rods	0	0	0	0
						↓	↓	↓						
							↓	↓		wet	0	0	0	0
							tan	F-M sand tr. silt and						
		20				↓	↓	↓ (mica) ↓ C. sand		wet	0	0	0	0
1010	S-5			46/60"		M. dense	tan gray	F-M sand tr. silt		~1 ft slough in upper rods	0	0	0	0
						↓	↓	↓ (micaceous) ↓						
										wet	0	0	0	0
		25				↓	↓	↓		wet	0	0	0	0

* When rock coring, enter rock brokeness.

** Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated reponse read.

Drilling Area Background (ppm): 0.1

Remarks: Continuous macrocore in 2" x 5' acetate sleeve to 25' bgs
Discrete macrocore from 25' bgs to TD

Converted to Well: Yes X No _____ Well I.D. #: FT-PZ456I

Tetra Tech NUS, Inc.

BORING LOG

PROJECT NAME: NWIRP Calverton
PROJECT NUMBER: 112G02750
DRILLING COMPANY: Zebra
DRILLING RIG: Geoprobe 6620 DT

BORING No.: FT-PZ456I
DATE: 12-8-11
GEOLOGIST: J. Birkett
DRILLER: J. Diamond

Time	Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm) Sample	Sampler BZ	Borehole**	Driller BZ**
		25												
1026	S-6			27/60"		loose	tan	F sand some M. sand tr. silt		start discrete ~2' fell out of sleeve	0	0	0	0
								very few small pebbles (mica)		very wet				
											0	0	0	0
										wet				
		30								wet	0	0	0	0
1046	S-7			40/60"		loose	tan gray	F. sand some M sand tr. silt (micaceous)		sample fell out of liner "swampy" odor	0	0	0	0
										wet	0.2	0	0	0
		35								wet	0	0	0	0
1145	S-8			60/60"		m. dense	tan gray	F-M sand tr. silt (micaceous)		wet	0	0	0	0
										wet	0.5	0	0	0
										Swampy odor	0.9	0	0	0
		40								wet	0.7	0	0	0
1210	S-9			60/60"		dense	dk gray brown	VF-F sand some silt (micaceous)		wet	0.2	0	0	0
										wet	0.2	0	0	0
		45								wet	0.3	0	0	0
	S-10					m. dense	light gray	F-M sand tr. silt		wet	0.5	0	0	0
										wet	1.3	0	0	0
											1.6			
											1.7			
		50									1.3			

* When rock coring, enter rock brokeness.

** Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated reponse read.

Remarks: See first page for details

Drilling Area Background (ppm): 0.0

Converted to Well: Yes X No _____ Well I.D. #: FT-PZ456I

Tetra Tech NUS, Inc.

BORING LOG

PROJECT NAME: NWIRP Calverton
PROJECT NUMBER: 112G02750
DRILLING COMPANY: Zebra
DRILLING RIG: Geoprobe 6620 DT

BORING No.: FT-PZ456I
DATE: 12-8-11
GEOLOGIST: J. Birkett
DRILLER: J. Diamond

Time	Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm): Sample	Sampler BZ	Borehole**	Driller BZ**
	r	50												
1430	S-11			60/60*		Could not				*Macrocore stuff	–	–	–	–
										can't extrude or pound out liner				
										which is crushed on one side and	–	–	–	–
						retrieve, except portion in cutting shoe				has the button stuck on the other				
		55				dense	gray	VF-F sand (micaceous		wet	–	–	–	–
1510	S-12			60/60"		m. stiff	gray	Clay tr. silt		used new macrocore	0	0	0	0
						↓	↓	↓		wet				
											0	0	0	0
										wet				
		60				↓	↓	↓		wet	0	0	0	0
					EOB 60' bgs									

* When rock coring, enter rock brokeness.

** Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated reponse read.

Remarks: See first page for details

Drilling Area Background (ppm): 0.0

Converted to Well: Yes X No ____ Well I.D. #: FT-PZ456I

Tetra Tech NUS, Inc.

BORING LOG

PROJECT NAME: NWIRP Calverton
PROJECT NUMBER: 112G02750
DRILLING COMPANY: Zebra
DRILLING RIG: Geoprobe 6620 DT

BORING No.: FT-PZ457
DATE: 12-2-11
GEOLOGIST: J. Birkett
DRILLER: E. Moraitis

Time	Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm) Sample	Sampler BZ	Borehole**	Driller BZ**
		0												
0938	S-1			40/60"		loose	Dk Brn Gray	F-M sand and organics		moist	0	0	0	0
						m. dense	Brn	F-M sand some silt		moist	0	0	0	0
						med stiff	Brn Gray	Silty F sand tr. to some clay		moist to wet				
	S-2	5									0	0	0	0
0942				32/60"	▽	m. dense	tan gray	F-M sand tr. silt		wet	0	0	0	0
								(micaceous						
										wet	0	0	0	0
		10								wet	0	0	0	0
	S-3				EOB 10' bgs			Screen well from 4-14'						

* When rock coring, enter rock brokeness.

** Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated reponse read.

Remarks: Continuous macrocore in 2"x5' sleeves to TD

Drilling Area Background (ppm): 0.0

Converted to Well: Yes X No ____ Well I.D. #: FT-PZ457

Tetra Tech NUS, Inc.

BORING LOG

PROJECT NAME: NWIRP Calverton
PROJECT NUMBER: 112G02750
DRILLING COMPANY: Zebra
DRILLING RIG: Geoprobe 6620 DT

BORING No.: FT-PZ458I
DATE: 11-29-11
GEOLOGIST: J. Birkett
DRILLER: L. Reiss

Time	Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm) Sample	Sampler BZ	Borehole**	Driller BZ**
		0												
1041	S-1			36/60"	▽	loose	DK Brn	organic matter and sand		Moist to wet	0	0	0	0
						m. dense	Gray	F-M sand some C. sand and pebbles tr. silt		wet	0	0	0	0
						m. dense	DK Brn	F-C sand and F. organics tr. sm to med pebbles		wet	0	0	0	0
										pebble layer ~3.75'				
		5				m. dense	DK Brn	F-M sand some F. organics tr. pebbles		wet	0	0	0	0
1048	S-2			49/60"		m. dense	Brn	F-M sand some F. organics tr. sm med pebbles		wet	0	0	0	0
						m. dense	Brn	F-M sand tr. C. sand and silt		wet	0	0	0	0
						↓	↓	↓		less silt and C. sand as you deepen	0	0	0	0
		10				m. dense	light Brn to Brn	↓		wet	0	0	0	0
1101	S-3			48/60"		m. dense	Brn	F-M sand tr. silt and C. sand		wet	0	0	0	0
						↓	↓	↓						
										wet	0	0	0	0
		15				↓	↓	↓		wet	0	0	0	0
1115	S-4			43/60		m. dense	Brn	F-M sand tr. silt		wet	0	0	0	0
						↓	↓	↓						
										wet	0	0	0	0
		20				↓	↓	↓		wet	0	0	0	0
1135	S-5			52/60		m. dense	light Brn	F-M sand tr. silt		wet	0	0	0	0
						↓	↓	↓						
										wet	0	0	0	0
		25				↓	↓	↓		wet	0	0	0	0

* When rock coring, enter rock brokeness.

** Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated reponse read.

Drilling Area Background (ppm): 0.0

Remarks: Continuous macrocores in 5'x2" acetate sleeves to 5' bgs
Discrete macrocores below 5' to TD w/ 1 1/4" inner rods

Converted to Well: Yes X No _____ Well I.D. #: FT-PZ458I

Tetra Tech NUS, Inc.

BORING LOG

PROJECT NAME: NWIRP Calverton
PROJECT NUMBER: 112G02750
DRILLING COMPANY: Zebra
DRILLING RIG: Geoprobe 6620 DT

BORING No.: FT-PZ458I
DATE: 11-29-11
GEOLOGIST: J. Birkett
DRILLER: L. Reiss

Time	Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm) Sample	Sampler BZ	Borehole**	Driller BZ**
		25												
1200	S-6			56/60		m. dense	light Brn	F-M sand tr. silt		wet	0	0	0	0
						↓	↓	↓						
										wet	0	0	0	0
		30				↓	↓	↓		mica content increasing with depth	0	0	0	0
1222	S-7			60/60		m. dense	light Brn	F-M sand tr. silt		wet	0	0	0	0
						↓	↓	↓	↓	micaceous				
										wet	0	0	0	0
						↓	↓	↓	↓	micaceous				
		35				m. dense	Brn Gray	F-M sand tr. silt		wet	0	0	0	0
1240	S-8			60/60		m. dense	tan Gray	F-M sand tr. silt tr. Crsand		wet	0	0	0	0
						↓	↓	↓	↓	(micaceous)				
										wet	0	0	0	0
		40				↓	↓	↓	↓	wet	0	0	0	0
1300	S-9			60/60		m. dense	tan gray	F-M sand tr. silt		wet	0	0	0	0
						↓	↓	↓	↓	micaceous				
										wet	0	0	0	0
						↓	↓	↓	↓					
		45				stiff	gray	Clay tr. silt		3 inches of clay in shoe	0	0	0	0
					EOB 45' bgs									

* When rock coring, enter rock brokeness.

** Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated reponse read.

Remarks: See first page for details

Drilling Area Background (ppm): 0.0

Converted to Well: Yes X No ____ Well I.D. #: FT-PZ458I

Tetra Tech NUS, Inc.

BORING LOG

PROJECT NAME: NWIRP Calverton
PROJECT NUMBER: 112G02750
DRILLING COMPANY: Zebra
DRILLING RIG: Geoprobe 7720DT

BORING No.: FT-PZ459I
DATE: 11-18-11
GEOLOGIST: J. Birkett
DRILLER: L. Reiss

Time	Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm) Sample	Sampler BZ	Borehole**	Driller BZ**
0835	S-1			35"/60"		loose	DK Brn	F-M sand some organics tr. silt		moist	0	0	0	0
						m. dense	Brn	F-M sand tr. silt, C. sand and sm. pebbles		moist	0	0	0	0
						↓		↓ ↓						
						↓		↓ ↓			0	0	0	0
		5				↓		↓ ↓						
0841	S-2			40/60"		m. dense	Brn	F-M sand tr. silt, C. sand and sm. pebble		moist	0	0	0	0
						m. dense	DK Brn	F-M sand some sm. to med pebbles		iron staining ~65'	0	0	0	0
						M. dense	org Brn	F-M sand tr. silt and C. sand		moist				
					WT-8.5' bgs	↓		↓ ↓		moist to wet	0	0	0	0
		10			▽	↓		↓ ↓		wet WT ~8.5' bgs	0	0	0	0
0845	S-3			40/60"		m. dense	org Brn	F-M sand tr. silt		wet	0	0	0	0
						m. dense	tan	F-M sand tr. silt						
						↓		↓ ↓		wet	0	0	0	0
		15				↓		↓ ↓		wet	0	0	0	0
0853	S-4			12/60"		m. dense	tan	F-M sand tr. silt		wet	0	0	0	0
						↓		↓ ↓						
						↓		↓ ↓		wet	0	0	0	0
		↑				↓		↓ ↓		wet	0	0	0	0
0900	S-5	20		12/60"		m. dense	tanish gray	F-M sand tr. silt		wet	0	0	0	0
						↓		↓ ↓						
						↓		↓ ↓		wet	0	0	0	0
		25				↓		↓ ↓		wet	0	0	0	0

* When rock coring, enter rock brokeness.

** Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated reponse read.

Remarks: Continuous macrocore (2"×5' acetate sleeve) to 15' bgs
Discrete macrocore from 15' bgs to TD

Drilling Area Background (ppm): 0.0

Converted to Well: Yes X No _____ Well I.D. #: FT-PZ459I and PZ459S

Tetra Tech NUS, Inc.

BORING LOG

NW1

PROJECT NAME: NWIRP Calverton
PROJECT NUMBER: 112G02750
DRILLING COMPANY: Zebra
DRILLING RIG: Geoprobe 7720 DT

BORING No.: FT-PZ459I
DATE: 11-18-11
GEOLOGIST: J. Birkett
DRILLER: L. Reiss

Time	Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm): Sample	Sampler BZ	Borehole**	Driller BZ**
		25												
0910	S-6			25/60"		M. dense	tanish gray	F-M sand tr. silt and G. sand (micaceous)		wet	0	0	0	0
										mica content increase w/depth				
										wet	0.3	0	0	0
										large pebble at 8' bgs				
		30								wet	0.8	0	0	0
0920	S-7			0/60"				NO RECOVERY		Soil washing				
										right out of				
										sleeve				
										(most likely F-M				
		35						NO RECOVERY		sand)				
0931	S-8			0/60"				NO RECOVERY		Same as above				
										There is soil enter sleeve because				
										inner rods are being pushed				
										up ~3" on push where point is				
		40						NO RECOVERY		allowed to release, but it falls out				
0944	S-9			40/60"		M. dense	Gray	F. sand some M sand tr. silt		wet	0	0	0	0
										(less mica than 25-30')				
											0	0	0	0
		45								wet	0	0	0	0
1000	S-10			36/60"		m. dense	Gray	F-M sand some silt		wet	0	0	0	0
						very stiff	Gray	Clay tr. silt		dk gray right above clay ~1"				
										wet	0	0	0	0
		50			EOB 50' bgs						0	0	0	0

NW IV

* When rock coring, enter rock brokeness.

** Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated reponse read.

Remarks: See first page for details

Drilling Area Background (ppm): 0.0

Converted to Well: Yes X No ____ Well I.D. #: FT-PZ459I and PZ459S

Tetra Tech NUS, Inc.

BORING LOG

PROJECT NAME: NWIRP Calverton
PROJECT NUMBER: 112G02750
DRILLING COMPANY: Zebra
DRILLING RIG: Geoprobe 6620 DT

BORING No.: FT-PZ460
DATE: 12-1-11
GEOLOGIST: J. Birkett
DRILLER: L. Reiss

Time	Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm): Sample	Sampler BZ	Borehole**	Driller BZ**
		0												
0836	~~S-1~~							No macrocores				0		0
								taken until 50-55'						
								interval						
		5												
	~~S-2~~											0		0
		10												
												0		0
		15												
												0		0
		20												
												0		0
		25												

* When rock coring, enter rock brokeness.

** Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated reponse read.

Drilling Area Background (ppm): 0.0

Remarks: Discrete macrocores in 2" x 5' acetate sleeves from 50' to TD
Clay encountered at 59' bgs at FT-PZ461
PZ460 is maybe 5' lower in elevation than PZ461

Converted to Well: Yes X No ____ Well I.D. #: FT-PZ460

Used 2" ID outer rods w/ 1½" OD inner rods
Clay from 50-55', do new hole start from 40-45' interval

Tetra Tech NUS, Inc.

BORING LOG

PROJECT NAME: NWIRP Calverton
PROJECT NUMBER: 112G02750
DRILLING COMPANY: Zebra
DRILLING RIG: Geoprobe 6620 DT

BORING No.: FT-PZ460
DATE: 12-1-11
GEOLOGIST: J. Birkett
DRILLER: L. Reiss

	Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm): Sample	Sampler BZ	Borehole**	Driller BZ**
		25						No macrocores						
		30												
		35												
		40												
1055	S-2			44/60"		m.dense	tan Gray	F-M sand tr. silt		wet	0	0	0	0
										liner broke and stuck in sampler wet	0	0	0	0
		45					Gray	F sand some silt		wet	0.8	0	0	0
1135	S-3			48/60"		m.dense	Gray	F-M sand tr. silt		wet	0.8	0	0	0
										wet	0.5	0	0	0
		50								wet	0.8	0	0	0

* When rock coring, enter rock brokeness.

** Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated reponse read.

Drilling Area Background (ppm): 0.0

Remarks: Drilled to 50-55', but all clay, moved over 3' for new hole, start with 40-45' interval

Converted to Well: Yes X No _____ Well I.D. #: _____

Tetra Tech NUS, Inc.

BORING LOG

PROJECT NAME: NWIRP Calverton
PROJECT NUMBER: 112G02750
DRILLING COMPANY: Zebra
DRILLING RIG: Geoprobe 6620DT

BORING No.: FT-PZ460
DATE: 12-1-11
GEOLOGIST: J. Birkett
DRILLER: L. Reiss

Time	Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm): Sample	Sampler BZ	Borehole**	Driller BZ**
		50												
1006	S-1			55/60"		stiff	gray	Clay tr. silt (micaceous)		wet	0	0	0	0
											0	0	0	0
	55										0	0	0	0
					EOB 55' bgs									

* When rock coring, enter rock brokeness.

** Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated reponse read.

Remarks: See first page for details

Drilling Area Background (ppm): 0.0

Converted to Well: Yes X No ____ Well I.D. #: FT-PZ460

Tetra Tech NUS, Inc.

BORING LOG

PROJECT NAME: NWIRP Calverton
PROJECT NUMBER: 112G02750
DRILLING COMPANY: Zebra
DRILLING RIG: Geoprobe 6620DT

BORING No.: FT-PZ461
DATE: 11-30-11
GEOLOGIST: J. Birkett
DRILLER: L. Reiss

Time	Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm) Sample	Sampler BZ	Borehole**	Driller BZ**
		0												
0906	S-1			26/60"		loose	Dk Brn	Organics and sand		moist	0	0	0	0
						m. dense	Brn	F sand some M sand and silt tr. C sand		moist				
											0	0	0	0
						m. dense	org Brn	F-M sand some sm-lg pebbles tr. silt		thin pebble layers				
		5				m. dense	tan gray	F sand some M. sand tr. silt		moist	0	0	0	0
0910	S-2			33/60"		m. dense to dense	tan gray	F sand some M sand tr. to some silt		moist	0	0	0	0
										some thin silty layers and thin banded iron staining				
										moist	0	0	0	0
						m. dense	tan to light Brn	F-M sand tr. silt						
		10								moist	0	0	0	0
0914	S-3			42/60"		m. dense	tan	F sand some M sand tr. silt		moist	0	0	0	0
										moist	0	0	0	0
		15				m. dense	tan	F-M sand tr. silt		moist	0	0	0	0
0921	S-4			38/60"	▽	m. dense	tan	F-M sand tr. silt (some Mica)		moist to wet	0	0	0	0
										wet	0	0	0	0
										dark gray mica layer at 18' bgs				
		20									0	0	0	0
0928	S-5			40/60"		m. dense	tan gray	F-M sand tr. silt		moist	0	0	0	0
										moist	0	0	0	0
										mica layer at 12.5' bgs				
		25								moist	0	0	0	0

* When rock coring, enter rock brokeness.

** Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated reponse read.

Drilling Area Background (ppm): 0.0

Remarks: Continuous macrocore with 2"x5' sleeves to 25' bgs
Discrete macrocores from 25' bgs to TD

Converted to Well: Yes X No ____ Well I.D. #: FT-PZ461

Tetra Tech NUS, Inc.

BORING LOG

PROJECT NAME: NWIRP Calverton
PROJECT NUMBER: 112G02750
DRILLING COMPANY: Zebra
DRILLING RIG: Geoprobe 6620DT

BORING No.: FT-PZ461
DATE: 11-30-11
GEOLOGIST: J. Birkett
DRILLER: L. Reiss

Time	Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm): Sample	Sampler BZ	Borehole**	Driller BZ**
		25												
0936	S-6			46/60"		m. dense	tan Gray	F-M sand tr. silt and C sand (micaceous)		wet	0	0	0	0
										wet	0	0	0	0
							light tan			iron staining from 28-29				
		30					tan Gray			wet	0	0	0	0
1000	S-7			35/60"		m. dense	tan gray	F-M sand tr. silt (micaceous)		wet	0	0	0	0
										wet	0	0	0	0
		35								wet	0	0	0	0
1030	S-8			44/60"		m. dense	tan gray	F-M sand tr. silt (micaceous)		wet	0	0	0	0
										wet	0	0	0	0
		40								wet	0	0	0	0
1050	S-9			48/60"		m. dense	tan gray	F-M sand tr. silt (micaceous)		wet	0	0	0	0
										wet	0	0	0	0
		45					tan			wet	0	0	0	0
1110	S-10			55/60"		m. dense to dense	gray	F-M sand tr. silt (micaceous)		wet	0.8	0	0	0
										wet	0.3	0	0	0
		50								wet	0.9	0	0	0

* When rock coring, enter rock brokeness.

** Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated reponse read.

Remarks: See first page for details

Drilling Area Background (ppm): 0.0

Converted to Well: Yes X No ____ Well I.D. #: FT-PZ461

Tetra Tech NUS, Inc.

BORING LOG

PROJECT NAME: NWIRP Calverton
PROJECT NUMBER: 112G02750
DRILLING COMPANY: Zebra
DRILLING RIG: Geoprobe 6620DT

BORING No.: FT-PZ461
DATE: 11-30-11
GEOLOGIST: J. Birkett
DRILLER: L. Reiss

Time	Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm) Sample	Sampler BZ	Borehole**	Driller BZ**
		50												
1148	S-11			50/60"		m. dense	Gray	F-M sand tr. silt		wet	0	0	0	0
										wet	0	0	0	0
		55				dense	Gray	VF-F sand tr. silt (micaceous)		wet	0	0	0	0
1215	S-12	56		50/60"		m. dense	Gray	F-M sand tr. silt		wet	0	0	0	0
										wet	0	0	0	0
		60				Med stiff	Gray	Clay tr. silt		wet	0	0	0	0
					EOB 60' bgs									

* When rock coring, enter rock brokeness.

** Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated reponse read.

Remarks: See previous (first page) page for details

Drilling Area Background (ppm): 0.0

Converted to Well: Yes X No _____ Well I.D. #: FT-PZ461

Tetra Tech NUS, Inc.

BORING LOG

PROJECT NAME: NWIRP Calverton
PROJECT NUMBER: 112G02750
DRILLING COMPANY: Zebra
DRILLING RIG: Geoprobe 6620 DT

BORING No.: FT-PZ462I
DATE: 12-7-11
GEOLOGIST: J. Birkelt
DRILLER: J. Diamond

Time	Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm) Sample	Sampler BZ	Borehole**	Driller BZ**
0958	S-1			36/60"		loose	DK Brn	organics and F-M sand		moist	0	0	0	0
						loose	tan gray	F-M sand tr. silt		moist				
					▽	loose	Blk	F-M sand some F. organics		wet	0	0	0	0
		5				m. dense	light Brn tan	F-M sand tr. silt and c. sand		wet	0	0	0	0
1005	S-2			50/60"		m. dense	light Brn tan	F-M sand tr. silt		wet	0	0	0	0
								↓ ↓						
						m. dens	Brn	F-M sand some silt tr. F. organics		wet	0	0	0	0
						m. dense	DK Brn	F-M sand and F. organics		wet				
		10				m. dense	Brn	F-M sand some silt		wet	0	0	0	0
1017	S-3			60/60"		m. dense	Brn	F-M sand some silt		wet	0	0	0	0
						↓	↓	↓ ↓						
						m. dense	light Brn	F-M sand tr. silt, C. sand		wet	0	0	0	0
								and sm.-med pebbles		wet				
		15				↓	↓	↓ ↓		swampy odor	0	0	0	0
1026	S-4			60/60"		m. dense	Brn tan	F-M sand tr. to some silt		wet	0	0	0	0
								and C. sand		slough?				
										wet	0	0	0	0
		20				↓	Brn	↓ ↓		wet	0	0	0	0
1165	S-5			40/60		m. dense	tan	F-M sand tr. silt		wet	0	0	0	0
								and C. sand						
										wet	0	0	0	0
		25				↓	↓	↓ ↓		wet	0	0	0	0

* When rock coring, enter rock brokeness.

** Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated reponse read.

Drilling Area Background (ppm): 0.0

Remarks: Continuous macrocore in 2" x 5' sleeves to 20' bgs
Discrete macrocores from 20' bgs to TD

Converted to Well: Yes X No _____ Well I.D. #: FT-PZ462I

Tetra Tech NUS, Inc.

BORING LOG

PROJECT NAME: NWIRP Calverton
PROJECT NUMBER: 112G02750
DRILLING COMPANY: Zebra
DRILLING RIG: Geoprobe 6620 DT

BORING No.: FT-PZ 462I
DATE: 12-7-11
GEOLOGIST: J. Birkett
DRILLER: J. Diamond

Time	Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm) Sample	Sampler BZ	Borehole**	Driller BZ**
		25												
1120	S-6			60/60"		m. dense	tan	F-M sand tr. C. sand and silt		wet	0	0	0	0
											0	0	0	0
						m. dense	tan gray	F-M sand tr. silt (little mica)		wet				
		30									0	0	0	0
1136	S-7			60/60"		m. dense	tan gray	F-M sand tr. silt (little mica)		wet	0	0	0	0
										wet	0	0	0	0
						dense	gray	Silty VF sand						
		35				m. dense	tan gray	F-M Sand tr. silt and pebbles		wet	0	0	0	0
1201	S-8			60/60"		m. dense	tan gray	F-M sand tr. silt and very few pebbles (little mica)		wet	0	0	0	0
										wet	0	0	0	0
		40								wet	0	0	0	0
1228	S-9			60/60"		m. dense	tan light brn	F-M sand tr. silt and C. sand		wet	0	0	0	0
										wet	0	0	0	0
		45								wet	0	0	0	0
1250	S-10			55/60		m. dense	tan	F-M sand tr. silt		wet	0	0	0	0
										wet				
											0	0	0	0
		50				m. stiff	gray	Clay tr. silt (micaceous)		wet	0	0	0	0

* When rock coring, enter rock brokeness. EOB 50' bgs

** Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated reponse read.

Drilling Area Background (ppm): 0.0

Remarks: See first page for details

Converted to Well: Yes X No _____ Well I.D. #: FT-PZ462I

APPENDIX B

GROUNDWATER FIELD FORMS

GROUNDWATER FIELD FORMS – MONITORING WELLS

INCLUDED IN DATA SUMMARY REPORT FOR 2011 GROUNDWATER INVESTIGATION ACTIVITIES

Tetra Tech NUS, Inc.

GROUNDWATER LEVEL MEASUREMENT SHEET

Project Name: Site 2, 6A, 10 B and Southern Area
Project No.: 112G02750
Location: NWIRP Calverton, NY
Personnel: J. Birkett, E. Watt
Weather Conditions: 50°F cloudy breezy
Measuring Device:
Tidally Influenced: Yes ___ No X
Remarks:

Well or Piezometer Number	Date	Time	Elevation of Reference Point (feet)*	Total Well Depth (feet)*	Water Level Indicator Reading (feet)*	Thickness of Free Product (feet)*	Groundwater Elevation (feet)*	Comments
ET-MW01S	12-15-11	1112	47.53	19.12	9.45			
ET-MW02S		1111	46.95	19.00	8.99			
ET-MW03S		1110	47.81	19.48	9.86			
FC-MW01S		1134	47.5	16.74	8.04			
FC-MW01I		1134	47.35	57.51	7.86			
FC-MW02SR1		1125			7.08			
FC-MW02IR1		1124			7.05			
FC-MW03SR1		1122			6.68			
FC-MW04S		1128	45.4	15.10	6.34			
FC-MW04I		1127	45.32	51.38	6.23			
FC-MW05S		1119	48.03	17.74	9.35			
FC-MW05I		1118	47.35	59.37	8.69			
FC-MW06S		1138	50.66	20.98	11.46			
FC-MW07S		1115	48.34	17.01	9.40			
FC-MW07I		1114	48.25	60.07	9.34			
FC-MW08S		1130	45.18	14.49	5.14			
SA-MW-126S		1057	39.79	17.57	4.72			
SA-MW-126I		1058	39.97	52.18	4.85			
SA-MW-126D		1058	40.04	86.87	6.83			
SA-MW-127S		1039	40.57	17.15	6.41			
SA-MW-127I		1040	40.79	48.20	6.61			
SA-MW-127D		1040	40.57	77.14	8.27			
SA-MW-128S		1033	40.54	18.81	8.55			
FC-PZ05II		1120			9.30			

* All measurements to the nearest 0.01 foot

Tetra Tech NUS, Inc.

GROUNDWATER LEVEL MEASUREMENT SHEET

Project Name: Site 2, 6A, 10 B and Southern Area
Location: NWIRP Calverton, NY
Weather Conditions: 50°F cloudy breezy
Tidally Influenced: Yes ___ No X

Project No.: 112G02750
Personnel: J. Birkell, E. Watt
Measuring Device:
Remarks:

Well or Piezometer Number	Date	Time	Elevation of Reference Point (feet)*	Total Well Depth (feet)*	Water Level Indicator Reading (feet)*	Thickness of Free Product (feet)*	Groundwater Elevation (feet)*	Comments
SA-MW-128I	12-15-11	1032	40.96	42.20	9.01			
SA-MW-128D		1032	40.64	70.24	9.36			
SA-MW-129S		1024	51.92	31.32	21.89			
SA-MW-129I		1023	52.16	62.42	22.17			
SA-MW-129D		1025	52.19	92.01	22.11			
SA-MW-130S		1106	48.6	21.64	12.68			
SA-MW-130I		1105	38.84	48.16	12.46			
SA-MW-131S		0835	31.44	16.31	8.17			
SA-MW-131I		0834	31.43	41.55	7.81			
SA-MW-131D		0833	32.26	71.85	7.42			
SA-MW-132S		0822	32.7	16.90	5.51			
SA-MW-132I		0823	32.67	40.08	5.52			
SA-PZ-118S		0840	27.25	18.48	5.06			
SA-PZ-118I		0839	27.48	61.24	5.61			
SA-PZ-120S		0857	27.53	21.11	6.30			
SA-PZ-122S		0852	30.55	24.68	14.63			
SA-PZ-122I		0853	30.62	51.22	14.40			
SA-PZ-122D		0853	32.22	134.49	13.82			
SA-PZ-123S		0848	28.76	19.07	8.98			
SA-PZ-123I1		0848	28.8	44.40	9.50			
SA-PZ-123I		0849	28.64	83.66	10.15			
Staff Gauge and River Monitoring Point				**Top of Gauge**				
Staff Gauge #1 WS PRSC		0830	32.38	3.33	1.62			
Staff Gauge #2 ES PRSC		0824	32.41	3.33	1.80			
BM ES Conn Ave HDWL		0838	30.44	Concrete=	5.16			

* All measurements to the nearest 0.01 foot

Tetra Tech NUS, Inc.

GROUNDWATER LEVEL MEASUREMENT SHEET

Project Name: Site 2, 6A, 10 B and Southern Area
Project No.: 112G02750
Location: NWIRP Calverton, NY
Personnel: J. Birkett, E. Watt
Weather Conditions: 50°F cloudy breezy
Measuring Device:
Tidally Influenced: Yes ___ No X
Remarks:

Well or Piezometer Number	Date	Time	Elevation of Reference Point (feet)*	Total Well Depth (feet)*	Water Level Indicator Reading (feet)*	Thickness of Free Product (feet)*	Groundwater Elevation (feet)*	Comments
FT-MW01S	12-15-11	1225	18.51	30.10	22.37			
FT-MW01I		1224	18.21	79.70	22.08			
FT-MW02S		1232	10.9	NA	1415*	0.06	* Note: Did not oil water interface	
FT-MW02I		1231	10.78	70.47	14.16			
FT-MW03S		1220	20.84	32.54	25.09			
FT-MW04S		1228	16.77	27.90	19.95			
FT-MW05S		1208	8.52	19.71	10.95			
FT-MW05I		1209	8.92	59.90	11.36			
FT-MW06S		1212	16.91	28.83	20.32			
FT-MW06I		1211	17.97	75.71	21.33			
FT-MW07S		1214	24.74	36.44	28.98			
FT-MW08S		1206	5.29	16.08	7.42			
FT-MW08I		1207	5.4	35.61	7.51			
FT-PZ455S	12-15-11	0734		37.71	28.39			
FT-PZ455I	12-15-11	0736		~~75~~ 57.38	27.97			
FT-PZ462S		0749		14.71	4.59			
FT-PZ462I		0751		50.80	5.06			
FT-PZ461		0808		61.35	18.26			
FT-PZ460		0813		52.41	9.02			
FT-PZ459S		0945		19.38	10.58			
FT-PZ459I		0946		48.31	10.86			
FT-PZ458S		0955		16.11	4.35			
FT-PZ458I		0956		46.85	4.32			
FT-PZ457		1004		16.18	9.12			
FT-PZ456S		1012		8.13	15.06			
FT-PZ456I		1012		8.31	54.31			

* All measurements to the nearest 0.01 foot

Tetra Tech NUS, Inc.

GROUNDWATER LEVEL MEASUREMENT SHEET

Project Name: Site 2, 6A, 10 B and Southern Area
Project No.: 112G02750
Location: NWIRP Calverton, NY
Personnel: J. Birkett, E. Watt
Weather Conditions: 50°F cloudy breezy
Measuring Device:
Tidally Influenced: Yes ____ No X
Remarks:

Well or Piezometer Number	Date	Time	Elevation of Reference Point (feet)*	Total Well Depth (feet)*	Water Level Indicator Reading (feet)*	Thickness of Free Product (feet)*	Groundwater Elevation (feet)*	Comments
SA-PZ-133I1	12-15-11		41.43	42.52				
SA-PZ-133I			41.545	49.25				
SA-PZ-134		1037	39.62	46.75	5.82			
SA-PZ-135			38.747	48.14				
SA-PZ-136		1054	39.552	50.59	4.93			
SA-PZ-137		1052	41.666	56.22	7.01			
SA-PZ-138I1		1049	39.799	42.00	4.59			
SA-PZ-138I		1050	40.03	56.30	4.72			
SA-PZ-139		1043	42.277	49.42	7.59			
SA-PZ-140		0930	46.4		13.39			
SA-PZ-141		0927	46.083		13.77			
SA-PZ-142		0923	47.262		14.74			
SA-PZ-143		0919	46.394		14.32			
SA-PZ-144S		0934	41.503		8.77			
SA-PZ-144I		0938	41.761		8.69			
SA-PZ-145S		0904	40.956		9.17			
SA-PZ-145I		0904	41.109		9.35			
SA-PZ-145D		0905	40.984		9.71			
SA-PZ-146		0941	38.697	8.55	3.68			
SA-PZ-149I		1046			9.25			
SA-PZ-161I		1041			5.96			
SA-PZ-163I								
SA-PZ-164S								
SA-PZ-164I								
SA-PZ-166I		0843		82.94	6.33			
SA-PZ 168I		0845		82.68	7.59			
SA-PZ-168S		0846		18.05	7.06			

* All measurements to the nearest 0.01 foot.

Tetra Tech NUS, Inc.

GROUNDWATER LEVEL MEASUREMENT SHEET

Project Name: Site 2, 6A, 10 B and Southern Area
Project No.: 112G02750
Location: NWIRP Calverton, NY
Personnel: J. Birkett, E. Watt
Weather Conditions: 50°F cloudy breezy
Measuring Device:
Tidally Influenced: Yes ____ No X
Remarks:

Well or Piezometer Number	Date	Time	Elevation of Reference Point (feet)*	Total Well Depth (feet)*	Water Level Indicator Reading (feet)*	Thickness of Free Product (feet)*	Groundwater Elevation (feet)*	Comments
SA-PZ-168S	12-15-11							
SA-PZ-168I								
SA-PZ-169I								
SA-PZ-172		0910		49.62	14.71			
SA-PZ-171		0915		48.79	14.85			
FT-PZ452		1149		16.17	10.02			
FT-PZ451		1146		17.28	9.19			
FT-PZ453		1159		15.51	7.20			
FT-PZ454		1154		14.85	7.52			
Staff-Gauge FT-12		1505			1.08	3.33		
Staff-gauge FT-13	↓	1515			1.17	3.33		
Staff gauge FT-10		1521			1.52	3.33		McKay Lake
Staff gauge FT-11	↓	1530			1.60	3.33		Finger lake

* All measurements to the nearest 0.01 foot

Tetra Tech NUS, Inc.

GROUNDWATER LEVEL MEASUREMENT SHEET

Project Name: Site 2, 6A, 10 B and Southern Area
Project No.: 112G02750
Location: NWIRP Calverton, NY
Personnel: J. Birkett
Weather Conditions: high 50° clear breezy
Measuring Device:
Tidally Influenced: Yes ___ No X
Remarks:

Well or Piezometer Number	Date	Time	Elevation of Reference Point (feet)*	Total Well Depth (feet)*	Water Level Indicator Reading (feet)*	Thickness of Free Product (feet)*	Groundwater Elevation (feet)*	Comments
ET-MW01S			47.53	19.12				
ET-MW02S			46.95	19.00				
ET-MW03S			47.81	19.48				
FC-MW01S			47.5	16.74				
FC-MW01I			47.35	57.51				
FC-MW02SR1								
FC-MW0IR1								
FC-MW03SR1								
FC-MW04S			45.4	15.10				
FC-MW04I			45.32	51.38				
FC-MW05S			48.03	17.74				
FC-MW05I			47.35	59.37				
FC-PZ05I1								
FC-MW06S			50.66	20.98				
FC-MW07S			48.34	17.01				
FC-MW07I			48.25	60.07				
FC-MW08S			45.18	14.49				
SA-MW-126S		1747	39.79	17.57	5.04			
SA-MW-126I		1748	39.97	52.18	5.17			
SA-MW-126D		1749	40.04	86.87	7.26			
SA-MW-127S		1743	40.57	17.15	6.84			
SA-MW-127I		1744	40.79	48.20	7.03			
SA-MW-127D		1745	40.57	77.14	8.57			
SA-MW-128S		1739	40.54	18.81	8.96	-		

* All measurements to the nearest 0.01 foot

Tetra Tech NUS, Inc.

GROUNDWATER LEVEL MEASUREMENT SHEET

Project Name: Site 2, 6A, 10 B and Southern Area
Project No.: 112G02750
Location: NWIRP Calverton, NY
Personnel: J. Birkett
Weather Conditions:
Measuring Device:
Tidally Influenced: Yes ____ No ____
Remarks:

Well or Piezometer Number	Date	Time	Elevation of Reference Point (feet)*	Total Well Depth (feet)*	Water Level Indicator Reading (feet)*	Thickness of Free Product (feet)*	Groundwater Elevation (feet)*	Comments
SA-MW-128I	2-23		40.96	42.20	9.43			
SA-MW-128D		1741	40.64	70.24	9.59			
SA-MW-129S			51.92	31.32				
SA-MW-129I			52.16	62.42				
SA-MW-129D			52.19	92.01				
SA-MW-130S			48.6	21.64				
SA-MW-130I			38.84	48.16				
SA-MW-131S		1230	31.44	16.31	8.50			
SA-MW-131I		1229	31.43	41.55	8.15			
SA-MW-131D		1228	32.26	71.85	7.65			
SA-MW-132S		1211	32.7	16.90	5.84			
SA-MW-132I		1210	32.67	40.08	5.85			
SA-PZ-118S		1714	27.25	18.48	5.20			
SA-PZ-118I		1713	27.48	61.24	5.79			
SA-PZ-120S			27.53	21.11				
SA-PZ-122S		1721	30.55	24.68	14.89			
SA-PZ-122I			30.62	51.22	14.67			
SA-PZ-122D		1723	32.22	134.49	13.98			
SA-PZ-123S		1719	28.76	19.07	9.18			
SA-PZ-123I1		1710	28.8	44.40	9.70			
SA-PZ-123I	↓	1717	28.64	83.66	10.34			
Staff Gauge and River Monitoring Point				**Top of Gauge**				
Staff Gauge #1 WS PRSC	2-23	1407	32.38	3.33	1.65			
SA-GA01CS		1410						Culvert
Staff Gauge #2 ES PRSC		1330	32.41	3.33	1.49			
BM ES Conn Ave HDWL		1712	30.44	Concrete	5.32			

* All measurements to the nearest 0.01 foot

Tetra Tech NUS, Inc.

GROUNDWATER LEVEL MEASUREMENT SHEET

Project Name: Site 2, 6A, 10 B and Southern Area **Project No.:**
Location: NWIRP Calverton, NY **Personnel:**
Weather Conditions: **Measuring Device:**
Tidally Influenced: Yes ____ No ____ **Remarks:**

Well or Piezometer Number	Date	Time	Elevation of Reference Point (feet)*	Total Well Depth (feet)*	Water Level Indicator Reading (feet)*	Thickness of Free Product (feet)*	Groundwater Elevation (feet)*	Comments
SA-PZ-133I1	2-23-11		41.43	42.52				
SA-PZ-133I			41.545	49.25				
SA-PZ-134			39.62	46.75				
SA-PZ-135			38.747	48.14				
SA-PZ-136			39.552	50.59				
SA-PZ-137			41.666	56.22				
SA-PZ-138I1			39.799	42.00				
SA-PZ-138I			40.03	56.30				
SA-PZ-139			42.277	49.42				
SA-PZ-140		1548	46.4		13.85			
SA-PZ-141		1546	46.083		13.91			
SA-PZ-142		1543	47.262		15.16			
SA-PZ-143		1459	46.394		14.67			
SA-PZ-144S		1703	41.503		8.99			
SA-PZ-144I			41.761		8.92			
SA-PZ-145S		1423	40.956		9.60			
SA-PZ-145I		1425	41.109		9.79			
SA-PZ-145D		1426	40.984		9.91			
SA-PZ-146		1707	38.697	8.55	3.73			
SA-PZ-149I								
SA-PZ-161I								
SA-PZ-163I								
SA-PZ-164S								
SA-PZ-164I								
SA-PZ-166I								

* All measurements to the nearest 0.01 foot

Tetra Tech NUS, Inc.

GROUNDWATER LEVEL MEASUREMENT SHEET

Project Name: Site 2, 6A, 10 B and Southern Area **Project No.:**
Location: NWIRP Calverton, NY **Personnel:**
Weather Conditions: **Measuring Device:**
Tidally Influenced: Yes ____ No ____ **Remarks:**

Well or Piezometer Number	Date	Time	Elevation of Reference Point (feet)*	Total Well Depth (feet)*	Water Level Indicator Reading (feet)*	Thickness of Free Product (feet)*	Groundwater Elevation (feet)*	Comments
SA-PZ-168S	2-23-12							
SA-PZ-168I								
SA-PZ-169I								
SA-PZ-171I		1453			15.25			
SA-PZ-172I		1446			15.16			

* All measurements to the nearest 0.01 foot

Tetra Tech NUS, Inc.

GROUNDWATER LEVEL MEASUREMENT SHEET

Project Name: Site 2, 6A, 10 B and Southern Area
Project No.:
Location: NWIRP Calverton, NY
Personnel:
Weather Conditions:
Measuring Device:
Tidally Influenced: Yes ____ No ____
Remarks:

Well or Piezometer Number	Date	Time	Elevation of Reference Point (feet)*	Total Well Depth (feet)*	Water Level Indicator Reading (feet)*	Thickness of Free Product (feet)*	Groundwater Elevation (feet)*	Comments
FT-MW01S	2-23-12		18.51	30.10				
FT-MW01I			18.21	79.70				
FT-MW02S			10.9	NA		0.06		
FT-MW02I			10.78	70.47				
FT-MW03S			20.84	32.54				
FT-MW04S			16.77	27.90				
FT-MW05S		1626	8.52	19.71	11.31			
FT-MW05I		1627	8.92	59.90	11.73			
FT-MW06S		1630	16.91	28.83	20.61			
FT-MW06I		1629	17.97	75.71	21.63			
FT-MW07S		1619	24.74	36.44	29.17			
FT-MW08S		1625	5.29	16.08	7.80			
FT-MW08I		1624	5.4	35.61	7.89			
FT-PZ451S		1636			9.67			
FT-PZ452S		1638			10.45			
FT-PZ453S		1646			7.73			
FT-PZ454S		1642			8.14			
FT-PZ455S		1614			28.58			
FT-PZ455I		1612			28.18			
FT-PZ456S		1120			8.52			
FT-PZ456I		1122			8.68			
FT-PZ457S		1128			9.82			
FT-PZ458S		1656			4.95			
FT-PZ458I		1656			4.93			
FT-PZ459S		1659			11.04			

Tetra Tech NUS, Inc.

GROUNDWATER LEVEL MEASUREMENT SHEET

Project Name: Site 2, 6A, 10 B and Southern Area
Project No.: 112G02750
Location: NWIRP Calverton, NY
Personnel: J. Birkett
Weather Conditions: high 50°F clear breezy
Measuring Device:
Tidally Influenced: Yes ____ No X
Remarks:

Well or Piezometer Number	Date	Time	Elevation of Reference Point (feet)*	Total Well Depth (feet)*	Water Level Indicator Reading (feet)*	Thickness of Free Product (feet)*	Groundwater Elevation (feet)*	Comments
FT-PZ459I	2-23-12	1700			11.33			
FT-PZ460I					9.65			
FT-PZ461I		0842			18.74			
FT-PZ462S		0704			4.87			
FT-PZ462I		0703			5.33			
Staff Gauge and River Monitoring Point				**Top of Gauge**				
FT-GA10	2-23-12	1647		3.33	1.06			
FT-GA10CS				Concrete	—			Culvert
FT-GA11		1600		3.33	1.05			
FT-GA11CS				Concrete	—			Culvert
FT-GA12		1103		3.33	0.96			
FT-GA12CS		1107		Concrete	0.75			Culvert
FT-GA13		~~1103~~ 1653		3.33	~~0.46~~ 1.06			
FT-GA13CS				Concrete	—			Culvert

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: NWIRP Calverton
Project No.: 112G02045

[] Domestic Well Data
[] Monitoring Well Data
[X] Other Well Type: Temporary Well
[] QA Sample Type:

Sample ID No.: FT-GW-421-2125
Sample Location: SB-421
Sampled By: Vince Shickora
C.O.C. No.:
Type of Sample:
[X] Low Concentration
[] High Concentration

SAMPLING DATA:

Date: 6-16-11	Color	pH	S.C.	Temp.	Turbidity	DO	Salinity	ORP
Time: 0940	(Visual)	(S.U.)	(mS/cm)	(°C)	(NTU)	(mg/l)	(%)	
Method: Peristaltic pump	Clear	4.80	0.060	14.56	13.5	7.89	0.0	197

PURGE DATA: *(Gallons)*

Date: 6-16-11	Volume	pH	S.C.	Temp.	Turbidity	DO	Salinity	ORP
Method: Peristaltic pump	0.5	5.12	0.100	16.20	407	7.61	0.0	173
Monitor Reading (ppm): 0.0	2	5.03	0.082	15.71	137	7.80	0.0	180
Well Casing Diameter & Material	3.5	4.94	0.065	14.90	28.4	7.93	0.0	186
Type: 1" Stainless	5	4.80	0.060	14.56	13.5	7.89	0.0	197
Total Well Depth (TD): 25'								
Static Water Level (WL): NA								
One Casing Volume(gal/L): ↓								
Start Purge (hrs): 0920								
End Purge (hrs): 0940								
Total Purge Time (min): 20								
Total Vol. Purged (gal/L): 5.0								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements		Collected
VOCs	HCL		2 X 40 ml vials	yes

OBSERVATIONS / NOTES:

- No odors, stains, or elevated PID readings

Temporary well point screen zone 21 ft to 25 ft.

Circle if Applicable:

MS/MSD	Duplicate ID No.:
—	—

Signature(s):

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: NWIRP Calverton
Project No.: 112G02045

[] Domestic Well Data
[] Monitoring Well Data
[X] Other Well Type: Temporary Well
[] QA Sample Type:

Sample ID No.: FT-GW421-3135
Sample Location: SB-421
Sampled By: Vince Shickora
C.O.C. No.:
Type of Sample:
[X] Low Concentration
[] High Concentration

SAMPLING DATA:

Date: 6-16-11	Color	pH	S.C.	Temp.	Turbidity	DO	Salinity	ORP
Time: 1005	(Visual)	(S.U.)	(mS/cm)	(^{0}C)	(NTU)	(mg/l)	(%)	
Method: Peristaltic pump	Brn Tint	5.83	0.254	13.63	74.2	5.36	0.0	32

PURGE DATA: *(Gallons)*

Date: 6-16-11	Volume	pH	S.C.	Temp.	Turbidity	DO	Salinity	ORP
Method: Peristaltic pump	0.5	5.64	0.276	14.72	1839	4.91	0.0	22
Monitor Reading (ppm): 0.0	2	5.82	0.262	14.18	236	5.14	0.0	18
Well Casing Diameter & Material	3.5	5.82	0.254	13.98	89.1	5.30	0.0	27
Type: 1" Stainless	5	5.83	0.254	13.63	74.2	5.36	0.0	32
Total Well Depth (TD): 35'								
Static Water Level (WL): NA								
One Casing Volume(gal/L): ↓								
Start Purge (hrs): 0945								
End Purge (hrs): 1005								
Total Purge Time (min): 20								
Total Vol. Purged (gal/L): 5.0								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
VOCs	HCL	2 X 40 ml vials	Yes

OBSERVATIONS / NOTES:

- No odors, stains, or elevated PID readings.

Temporary well point screen zone 31 ft to 35 ft.

Circle if Applicable:

MS/MSD	Duplicate ID No.:
—	—

Signature(s):

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: NWIRP Calverton
Project No.: 112G02045

[] Domestic Well Data
[] Monitoring Well Data
[X] Other Well Type: Temporary Well
[] QA Sample Type:

Sample ID No.: FT-GW421-4145
Sample Location: SB-421
Sampled By: Vince Shickora
C.O.C. No.:
Type of Sample:
[X] Low Concentration
[] High Concentration

SAMPLING DATA:

	Color (Visual)	pH (S.U.)	S.C. (mS/cm)	Temp. (°C)	Turbidity (NTU)	DO (mg/l)	Salinity (%)	ORP
Date: 6-16-11								
Time: 1030								
Method: Peristaltic pump	Brn Tint	5.85	0.048	13.11	70.4	6.96	0.0	85

PURGE DATA: *(Gallons)*

	Volume	pH	S.C.	Temp.	Turbidity	DO	Salinity	ORP
Date: 6-16-11								
Method: Peristaltic pump	0.5	6.03	0.068	13.70	2633	4.71	0.0	-30
Monitor Reading (ppm): 0.0	2	6.01	0.052	13.42	249	5.37	0.0	9
Well Casing Diameter & Material	3.5	5.94	0.049	13.38	96.5	6.17	0.0	48
Type: 1" Stainless	5	5.85	0.048	13.11	70.4	6.96	0.0	85
Total Well Depth (TD): 45'								
Static Water Level (WL): NA								
One Casing Volume(gal/L): ↓								
Start Purge (hrs): 1010								
End Purge (hrs): 1030								
Total Purge Time (min): 20								
Total Vol. Purged (gal/L): 5.0								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements		Collected
VOCs	HCL		2 X 40 ml vials	yes

OBSERVATIONS / NOTES:

- No odors, stains, or elevated PID readings

Temporary well point screen zone 41 ft to 45 ft.

Circle if Applicable:

MS/MSD	Duplicate ID No.:
—	—

Signature(s):

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: NWIRP Calverton
Project No.: 112G02045

[] Domestic Well Data
[] Monitoring Well Data
[X] Other Well Type: Temporary Well
[] QA Sample Type:

Sample ID No.: FT-GW 421-5155
Sample Location: SB-421
Sampled By: Vince Shickora
C.O.C. No.:
Type of Sample:
[X] Low Concentration
[] High Concentration

SAMPLING DATA:

Date: 6-16-11	Color	pH	S.C.	Temp.	Turbidity	DO	Salinity	ORP
Time: 1140	(Visual)	(S.U.)	(mS/cm)	(^{0}C)	(NTU)	(mg/l)	(%)	
Method: Peristaltic pump	cldy-Brn	5.80	0.056	14.01	1330	5.90	0.0	30

PURGE DATA: *(Gallons)*

Date: 6-16-11	Volume	pH	S.C.	Temp.	Turbidity	DO	Salinity	ORP
Method: Peristaltic pump	0.5	5.99	0.069	14.40	2996	3.02	0.0	-20
Monitor Reading (ppm): 0.0	2	6.03	0.058	14.22	2318	4.56	0.0	-8
Well Casing Diameter & Material	3.5	6.00	0.056	14.03	1443	5.12	0.0	17
Type: 1" Stainless	5	5.80	0.056	14.01	1330	5.90	0.0	30
Total Well Depth (TD): 55'								
Static Water Level (WL): NA								
One Casing Volume(gal/L): ↓								
Start Purge (hrs): 1120								
End Purge (hrs): 1140								
Total Purge Time (min): 20								
Total Vol. Purged (gal/L): 5.0								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements		Collected
VOCs	HCL		2 X 40 ml vials	Yes

OBSERVATIONS / NOTES:

- No odors, stains, or elevated PID readings

Temporary well point screen zone 51 ft to 55 ft.

Circle if Applicable:

MS/MSD	Duplicate ID No.:
—	—

Signature(s):

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: NWIRP Calverton
Project No.: 112G02045

[] Domestic Well Data
[] Monitoring Well Data
[X] Other Well Type: Temporary Well
[] QA Sample Type:

Sample ID No.: FT-GW421-6165
Sample Location: SB-421
Sampled By: Vince Shickora
C.O.C. No.:
Type of Sample:
[X] Low Concentration
[] High Concentration

SAMPLING DATA:

Date: 6-16-11	Color	pH	S.C.	Temp.	Turbidity	DO	Salinity	ORP
Time: 1205	(Visual)	(S.U.)	(mS/cm)	(°C)	(NTU)	(mg/l)	(%)	
Method: Peristaltic pump	Cldy-Brn	5.81	0.056	14.31	402	7.36	0.0	79

PURGE DATA: *(Gallons)*

Date: 6-16-11	Volume	pH	S.C.	Temp.	Turbidity	DO	Salinity	ORP
Method: Peristaltic pump	0.5	5.95	0.067	14.86	3166	4.61	0.0	-10
Monitor Reading (ppm): 0.0	2	6.05	0.057	14.56	2311	5.38	0.0	25
Well Casing Diameter & Material	3.5	5.89	0.056	14.35	1105	6.71	0.0	60
Type: 1" Stainless	5	5.81	0.056	14.31	402	7.36	0.0	79
Total Well Depth (TD): 65'								
Static Water Level (WL): NA								
One Casing Volume(gal/L): ↓								
Start Purge (hrs): 1145								
End Purge (hrs): 1205								
Total Purge Time (min): 20								
Total Vol. Purged (gal/L): 5.0								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements		Collected
VOCs	HCL		2 X 40 ml vials	Yes

OBSERVATIONS / NOTES:

- No odors, stains, or elevated PID readings

Temporary well point screen zone 61 ft to 65 ft.

Circle if Applicable:

MS/MSD	Duplicate ID No.:
—	—

Signature(s):

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: NWIRP Calverton
Project No.: 112G02045

[] Domestic Well Data
[] Monitoring Well Data
[X] Other Well Type: Temporary Well
[] QA Sample Type:

Sample ID No.: FT-GW422-2125
Sample Location: SB-422
Sampled By: Vince Shickora
C.O.C. No.:
Type of Sample:
[X] Low Concentration
[] High Concentration

SAMPLING DATA:

Date: 6-15-11	Color	pH	S.C.	Temp.	Turbidity	DO	Salinity	ORP
Time: 1345	(Visual)	(S.U.)	(mS/cm)	(^{0}C)	(NTU)	(mg/l)	(%)	
Method: Peristaltic pump	Clear	4.36	0.068	12.56	13.0	9.24	0.0	218

PURGE DATA: *(Gallons)*

Date: 6-15-11	Volume	pH	S.C.	Temp.	Turbidity	DO	Salinity	ORP
Method: Peristaltic pump	0.5	5.56	0.072	14.08	1088	8.07	0.0	140
Monitor Reading (ppm): 0.0	2	4.93	0.067	12.88	46.6	8.46	0.0	179
Well Casing Diameter & Material	3.5	4.59	0.068	12.80	20.4	8.85	0.0	197
Type: 1" Stainless	5	4.36	0.068	12.56	13.0	9.24	0.0	218
Total Well Depth (TD): 25'								
Static Water Level (WL): NA								
One Casing Volume(gal/L): ↓								
Start Purge (hrs): 1325								
End Purge (hrs): 1345								
Total Purge Time (min): 20								
Total Vol. Purged (gal/L): 5.0								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements		Collected
VOCs	HCL		2 X 40 ml vials	yes (6)

OBSERVATIONS / NOTES:

- No odors, stains, or elevated PID readings

Temporary well point screen zone 21 ft to 25 ft.

Circle if Applicable:

MS/MSD: Yes

Duplicate ID No.: —

Signature(s):

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: NWIRP Calverton
Project No.: 112G02045

[] Domestic Well Data
[] Monitoring Well Data
[X] Other Well Type: Temporary Well
[] QA Sample Type:

Sample ID No.: FT-GW422-31.35
Sample Location: SB-422
Sampled By: Vince Shickora
C.O.C. No.:
Type of Sample:
[X] Low Concentration
[] High Concentration

SAMPLING DATA:

Date: 6-15-11	Color	pH	S.C.	Temp.	Turbidity	DO	Salinity	ORP
Time: 1410	(Visual)	(S.U.)	(mS/cm)	(^{0}C)	(NTU)	(mg/l)	(%)	
Method: Peristaltic pump	Clear	5.73	0.315	12.79	11.5	6.35	0.0	96

PURGE DATA: *(Gallons)*

Date: 6-15-11	Volume	pH	S.C.	Temp.	Turbidity	DO	Salinity	ORP
Method: Peristaltic pump	0.5	5.48	0.317	13.26	319	5.84	0.0	41
Monitor Reading (ppm): 0.0	2	5.67	0.316	12.97	41.0	6.21	0.0	67
Well Casing Diameter & Material	3.5	5.70	0.315	12.76	18.2	6.30	0.0	88
Type: 1" Stainless	5	5.73	0.315	12.79	11.5	6.35	0.0	96
Total Well Depth (TD): 35'								
Static Water Level (WL): NA								
One Casing Volume(gal/L): ↓								
Start Purge (hrs): 1350								
End Purge (hrs): 1410								
Total Purge Time (min): 20								
Total Vol. Purged (gal/L): 5.0								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements		Collected
VOCs	HCL		2 X 40 ml vials	Yes

OBSERVATIONS / NOTES:

- No odors, stains, or elevated PID readings

Temporary well point screen zone 31 ft to 35 ft.

Circle if Applicable:

MS/MSD	Duplicate ID No.:
—	—

Signature(s):

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: NWIRP Calverton
Project No.: 112G02045

[] Domestic Well Data
[] Monitoring Well Data
[X] Other Well Type: Temporary Well
[] QA Sample Type:

Sample ID No.: FT-GW422-4145
Sample Location: SB-422
Sampled By: Vince Shickora
C.O.C. No.:
Type of Sample:
[X] Low Concentration
[] High Concentration

SAMPLING DATA:

Date: 6-15-11	Color	pH	S.C.	Temp.	Turbidity	DO	Salinity	ORP
Time: 1435	(Visual)	(S.U.)	(mS/cm)	(^{0}C)	(NTU)	(mg/l)	(%)	
Method: Peristaltic pump	clear	5.86	0.122	13.14	31.4		0.0	84

PURGE DATA: *(Gallons)*

Date: 6-15-11	Volume	pH	S.C.	Temp.	Turbidity	DO	Salinity	ORP
Method: Peristaltic pump	0.5	6.05	0.176	13.90	1264	3.44	0.0	-39
Monitor Reading (ppm): 0.0	2	6.21	0.125	13.22	386	5.23	0.0	40
Well Casing Diameter & Material	3.5	5.98	0.123	13.11	151	6.08	0.0	65
Type: 1" Stainless	5	5.86	0.122	13.14	31.4		0.0	84
Total Well Depth (TD): 45'								
Static Water Level (WL): NA								
One Casing Volume(gal/L): ↓								
Start Purge (hrs): 1415								
End Purge (hrs): 1435								
Total Purge Time (min): 20								
Total Vol. Purged (gal/L): 5.0								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
VOCs	HCL	2 X 40 ml vials	yes

OBSERVATIONS / NOTES:

- No odors, stains, or elevated PID readings

Temporary well point screen zone 41 ft to 45 ft.

Circle if Applicable:

MS/MSD	Duplicate ID No.:
—	—

Signature(s):

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: NWIRP Calverton
Project No.: 112G02045

[] Domestic Well Data
[] Monitoring Well Data
[X] Other Well Type: Temporary Well
[] QA Sample Type:

Sample ID No.: FT-GW422-5155
Sample Location: SB-422
Sampled By: Vince Shickora
C.O.C. No.:
Type of Sample:
[X] Low Concentration
[] High Concentration

SAMPLING DATA:

Date: 6-15-11	Color	pH	S.C.	Temp.	Turbidity	DO	Salinity	ORP
Time: 1540	(Visual)	(S.U.)	(mS/cm)	(^{0}C)	(NTU)	(mg/l)	(%)	
Method: Peristaltic pump	Cldy-Brn	5.51	0.058	13.07	632	6.12	0.0	8.3

PURGE DATA: *(Gallons)*

Date: 6-15-11	Volume	pH	S.C.	Temp.	Turbidity	DO	Salinity	ORP
Method: Peristaltic pump	0.5	5.99	0.078	14.37	2764	4.33	0.0	15
Monitor Reading (ppm):	2	6.06	0.064	13.51	1479	5.11	0.0	23
Well Casing Diameter & Material	3.5	5.85	0.059	13.18	901	5.78	0.0	47
Type: 1" Stainless	5	5.51	0.058	13.07	632	6.12	0.0	8.3
Total Well Depth (TD): 55'								
Static Water Level (WL): NA								
One Casing Volume(gal/L): ↓								
Start Purge (hrs): 1520								
End Purge (hrs): 1540								
Total Purge Time (min): 20								
Total Vol. Purged (gal/L): 5.0								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements		Collected
VOCs	HCL		2 X 40 ml vials	yes (4)

OBSERVATIONS / NOTES:

Temporary well point screen zone 51 ft to 55 ft.

Circle if Applicable:

MS/MSD	Duplicate ID No.:	Signature(s):
—	FT-DUP03-20110615 1830 hrs	

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: NWIRP Calverton
Project No.: 112G02045

[] Domestic Well Data
[] Monitoring Well Data
[X] Other Well Type: Temporary Well
[] QA Sample Type:

Sample ID No.: FT-GW-422-6165
Sample Location: SB-422
Sampled By: Vince Shickora
C.O.C. No.:
Type of Sample:
[X] Low Concentration
[] High Concentration

SAMPLING DATA:

Date: 6-15-11	Color (Visual)	pH (S.U.)	S.C. (mS/cm)	Temp. (°C)	Turbidity (NTU)	DO (mg/l)	Salinity (%)	ORP
Time: 1610								
Method: Peristaltic pump	cldy-Brn	5.83	0.070	13.69	1443		0.0	43

PURGE DATA: *(Gallons)*

Date: 6-15-11	Volume	pH	S.C.	Temp.	Turbidity	DO	Salinity	ORP
Method: Peristaltic pump	0.5	5.59	0.105	14.30	3590	2.73	0.0	-30
Monitor Reading (ppm): 0.0	2	5.95	0.085	13.94	2926	3.41	0.0	-31
Well Casing Diameter & Material	3.5	5.89	0.073	13.78	2032	3.96	0.0	22
Type: 1" Stainless	5	5.83	0.070	13.69	1443		0.0	43
Total Well Depth (TD): 65'								
Static Water Level (WL): NA								
One Casing Volume(gal/L): ↓								
Start Purge (hrs): 1550								
End Purge (hrs): 1610								
Total Purge Time (min): 20								
Total Vol. Purged (gal/L): 5.0								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements		Collected
VOCs	HCL		2 X 40 ml vials	yes

OBSERVATIONS / NOTES:

- No odors, stains, or elevated PID readings

Temporary well point screen zone 61 ft to 65 ft.

Circle if Applicable:

MS/MSD	Duplicate ID No.:
—	—

Signature(s):

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: NWIRP Calverton
Project No.: 112G02750

[] Domestic Well Data
[] Monitoring Well Data
[X] Other Well Type: Temporary Well
[] QA Sample Type:

Sample ID No.: FT-GW423-2125
Sample Location: SB-423
Sampled By: Vince Shickora
C.O.C. No.:
Type of Sample:
[X] Low Concentration
[] High Concentration

SAMPLING DATA:

Date: 4-8-11	Color	pH	S.C.	Temp.	Turbidity	DO	Salinity	ORP
Time: 1020	(Visual)	(S.U.)	(mS/cm)	(^{0}C)	(NTU)	(mg/l)	(%)	
Method: Peristaltic pump	Orn Tint	6.33	0.368	10.07	81.5	6.97	0.0	106

PURGE DATA: *(Gallons)*

Date: 4-8-11	Volume	pH	S.C.	Temp.	Turbidity	DO	Salinity	ORP
Method: Peristaltic pump	0.5	6.96	0.375	9.77	833	7.39	0.0	89
Monitor Reading (ppm): 0.0	2	6.51	0.374	10.09	204	7.42	0.0	98
Well Casing Diameter & Material	3.5	6.40	0.372	10.12	98.2	7.28	0.0	95
Type: 1" Stainless	5	6.33	0.368	10.07	81.5	6.97	0.0	106
Total Well Depth (TD): 25'								
Static Water Level (WL): NA								
One Casing Volume(gal/L): ↓								
Start Purge (hrs): 1000								
End Purge (hrs): 1020								
Total Purge Time (min): 20								
Total Vol. Purged (gal/L): 5.0								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
VOCs	HCL	2X 40ML vials	yes

OBSERVATIONS / NOTES:

- No odors, stains, or elevated PID readings observed.

Temporary well point screen zone 21 ft to 25 ft.

Circle if Applicable:

MS/MSD	Duplicate ID No.:
—	—

Signature(s):

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: NWIRP Calverton
Project No.: 112G02750

[] Domestic Well Data
[] Monitoring Well Data
[X] Other Well Type: Temporary Well
[] QA Sample Type:

Sample ID No.: FT-G0423-3135
Sample Location: SB-423
Sampled By: Vince Shickora
C.O.C. No.:
Type of Sample:
[X] Low Concentration
[] High Concentration

SAMPLING DATA:

Date: 4-8-11	Color	pH	S.C.	Temp.	Turbidity	DO	Salinity	ORP
Time: 1050	(Visual)	(S.U.)	(mS/cm)	(^{0}C)	(NTU)	(mg/l)	(%)	
Method: Peristaltic pump	clear	5.70	0.265	10.39	12.2	7.06	0.0	121

PURGE DATA: *(Gallons)*

Date: 4-8-11	Volume	pH	S.C.	Temp.	Turbidity	DO	Salinity	ORP
Method: Peristaltic pump	0.5	6.44	0.290	9.81	723	7.40	0.0	25
Monitor Reading (ppm): 0.0	2	6.22	0.275	10.29	344	7.28	0.0	73
Well Casing Diameter & Material	3.5	5.97	0.270	10.48	136	7.21	0.0	106
Type: 1" Stainless	5	5.70	0.265	10.39	12.2	7.06	0.0	121
Total Well Depth (TD): 35'								
Static Water Level (WL): NA								
One Casing Volume(gal/L): ↓								
Start Purge (hrs): 1030								
End Purge (hrs): 1050								
Total Purge Time (min): 20								
Total Vol. Purged (gal/L): 5.0								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
VOCs	HCL	3 X 40ML vials	yes

OBSERVATIONS / NOTES:

- No odors, stains, or elevated PID readings observed

Temporary well point screen zone 31 ft to 35 ft.

Circle if Applicable:

MS/MSD	Duplicate ID No.:
—	—

Signature(s):

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: NWIRP Calverton
Project No.: 112G02750

[] Domestic Well Data
[] Monitoring Well Data
[X] Other Well Type: Temporary Well
[] QA Sample Type:

Sample ID No.: FT-GW423-4145
Sample Location: SB423
Sampled By: Vince Shickora
C.O.C. No.:
Type of Sample:
[X] Low Concentration
[] High Concentration

SAMPLING DATA:

Date: 4-8-11	Color	pH	S.C.	Temp.	Turbidity	DO	Salinity	ORP
Time: 1115	(Visual)	(S.U.)	(mS/cm)	(^{0}C)	(NTU)	(mg/l)	(%)	
Method: Peristaltic pump	Brn Tint	6.28	0.197	10.57	49.0	7.08	0.0	95

PURGE DATA: *(Gallons)*

Date: 4-8-11	Volume	pH	S.C.	Temp.	Turbidity	DO	Salinity	ORP
Method: Peristaltic pump	0.5	6.31	0.224	10.34	817	7.08	0.0	27
Monitor Reading (ppm):	2	6.36	0.211	10.60	248	7.17	0.0	55
Well Casing Diameter & Material	3.5	6.37	0.205	10.62	48.4	7.12	0.0	83
Type: 1" Stainless	5	6.28	0.197	10.57	49.0	7.08	0.0	95
Total Well Depth (TD): 45'								
Static Water Level (WL): NA								
One Casing Volume(gal/L): ↓								
Start Purge (hrs): 1055								
End Purge (hrs): 1115								
Total Purge Time (min): 20								
Total Vol. Purged (gal/L): 5.0								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
VOCs	HCL	3X 40ML vials	yes

OBSERVATIONS / NOTES:

- No odors, stains, or elevated PID readings observed

Temporary well point screen zone 41 ft to 45 ft.

Circle if Applicable:

MS/MSD	Duplicate ID No.:
—	—

Signature(s):

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: NWIRP Calverton
Project No.: 112602750

[] Domestic Well Data
[] Monitoring Well Data
[X] Other Well Type: Temporary Well
[] QA Sample Type:

Sample ID No.: PT-GW423-5155
Sample Location: SB423
Sampled By: Vince Shickora
C.O.C. No.:
Type of Sample:
[X] Low Concentration
[] High Concentration

SAMPLING DATA:

Date: 4-8-11	Color (Visual)	pH (S.U.)	S.C. (mS/cm)	Temp. (^{0}C)	Turbidity (NTU)	DO (mg/l)	Salinity (%)	ORP
Time: 1246								
Method: Peristaltic pump	Orn Cloudy	6.46	0.163	10.78	414	8.33	0.0	64

PURGE DATA: *(Gallons)*

Date: 4-8-11	Volume	pH	S.C.	Temp.	Turbidity	DO	Salinity	ORP
Method: Peristaltic pump	0.5	6.41	0.172	11.50	1214	8.18	0.0	96
Monitor Reading (ppm): 0.0	2	6.47	0.170	10.98	808	8.20	0.0	88
Well Casing Diameter & Material	3.5	6.44	0.167	10.87	511	8.29	0.0	79
Type: 1" Stainless	5	6.46	0.163	10.78	414	8.33	0.0	64
Total Well Depth (TD): 55'								
Static Water Level (WL): NA								
One Casing Volume(gal/L): ↓								
Start Purge (hrs): 1226								
End Purge (hrs): 1246								
Total Purge Time (min): 20								
Total Vol. Purged (gal/L): 5.0								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
VOCs	HCL	3X 40ML vials	yes

OBSERVATIONS / NOTES:

- No odors, stains, or elevated PID readings observed

Temporary well point screen zone 51 ft to 55 ft.

Circle if Applicable:

MS/MSD	Duplicate ID No.:
—	—

Signature(s):

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: NWIRP Calverton
Project No.: 112G02045

[] Domestic Well Data
[] Monitoring Well Data
[X] Other Well Type: Temporary Well
[] QA Sample Type:

Sample ID No.: FT-GW423-6165
Sample Location: SB-423
Sampled By: Vince Shickora
C.O.C. No.:
Type of Sample:
[X] Low Concentration
[] High Concentration

SAMPLING DATA:

Date: 6-15-11	Color	pH	S.C.	Temp.	Turbidity	DO	Salinity	ORP
Time: 1235	(Visual)	(S.U.)	(mS/cm)	(^{0}C)	(NTU)	(mg/l)	(%)	
Method: Peristaltic pump	Clear	5.34	0.064	12.88	19.1	8.01	0.0	166

PURGE DATA: *(Gallons)*

Date: 6-15-11	Volume	pH	S.C.	Temp.	Turbidity	DO	Salinity	ORP
Method: Peristaltic pump	0.5	6.08	0.069	14.20	369	8.11	0.0	133
Monitor Reading (ppm): 0.0	2	5.76	0.066	13.42	29.6	8.19	0.0	145
Well Casing Diameter & Material	3.5	5.52	0.065	12.92	20.2	8.08	0.0	157
Type: 1" Stainless	5	5.34	0.064	12.88	19.1	8.01	0.0	166
Total Well Depth (TD): 6.5'								
Static Water Level (WL): NA								
One Casing Volume (gal/L): ↓								
Start Purge (hrs): 1215								
End Purge (hrs): 1235								
Total Purge Time (min): 20								
Total Vol. Purged (gal/L): 5.0								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements		Collected
VOCs	HCL		2 X 40 ml vials	Yes

OBSERVATIONS / NOTES:

- No odors, stains, or elevated PID readings

Temporary well point screen zone 61 ft to 65 ft.

Circle if Applicable:

MS/MSD	Duplicate ID No.:
—	—

Signature(s):

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: NWIRP Calverton
Project No.: 112G02045

[] Domestic Well Data
[] Monitoring Well Data
[X] Other Well Type: Temporary Well
[] QA Sample Type:

Sample ID No.: FT-GW424-2125
Sample Location: SB-424
Sampled By: Vince Shickora
C.O.C. No.:
Type of Sample:
[X] Low Concentration
[] High Concentration

SAMPLING DATA:

Date: 6-15-11	Color	pH	S.C.	Temp.	Turbidity	DO	Salinity	ORP
Time: 0905	(Visual)	(S.U.)	(mS/cm)	(^{0}C)	(NTU)	(mg/l)	(%)	
Method: Peristaltic pump	Clear	5.32	0.507	11.46	30.1		0.0	119

PURGE DATA: *(Gallons)*

Date: 6-15-11	Volume	pH	S.C.	Temp.	Turbidity	DO	Salinity	ORP
Method: Peristaltic pump	0.5	5.52	0.604	12.57	1939	5.37	0.0	8.5
Monitor Reading (ppm): 0.0	2	5.54	0.525	11.77	81.5	3.70	0.0	101
Well Casing Diameter & Material	3.5	5.37	0.508	11.50	38.5	3.84	0.0	112
Type: 1" Stainless	5	5.32	0.507	11.46	30.1		0.0	119
Total Well Depth (TD): 25'								
Static Water Level (WL): NA								
One Casing Volume(gal/L): ↓								
Start Purge (hrs): 0845								
End Purge (hrs): 0905								
Total Purge Time (min): 20								
Total Vol. Purged (gal/L): 5.0								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements		Collected
VOCs	HCL		2 X 40 ml vials	yes

OBSERVATIONS / NOTES:

- No odors, stains, or elevated PID readings

Temporary well point screen zone 21 ft to 25 ft.

Circle if Applicable:

MS/MSD	Duplicate ID No.:
—	—

Signature(s):

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: NWIRP Calverton
Project No.: 112G02045

[] Domestic Well Data
[] Monitoring Well Data
[X] Other Well Type: Temporary Well
[] QA Sample Type:

Sample ID No.: FT-GW424-3135
Sample Location: SB-424
Sampled By: Vince Shickora
C.O.C. No.:
Type of Sample:
[X] Low Concentration
[] High Concentration

SAMPLING DATA:

Date: 6-15-11	Color	pH	S.C.	Temp.	Turbidity	DO	Salinity	ORP
Time: 0930	(Visual)	(S.U.)	(mS/cm)	(^{0}C)	(NTU)	(mg/l)	(%)	
Method: Peristaltic pump	Clear	5.19	0.159	12.02	39.6	6.47	0.0	128

PURGE DATA: *(Gallons)*

Date: 6-15-11	Volume	pH	S.C.	Temp.	Turbidity	DO	Salinity	ORP
Method: Peristaltic pump	0.5	5.73	0.184	12.40	342.1	5.29	0.0	25
Monitor Reading (ppm): 0.0	2	5.70	0.162	12.11	238	5.89	0.0	58
Well Casing Diameter & Material	3.5	5.41	0.161	12.00	112	6.18	0.0	99
Type: 1" Stainless	5	5.19	0.159	12.02	39.6	6.47	0.0	128
Total Well Depth (TD): 35'								
Static Water Level (WL): NA								
One Casing Volume(gal/L): ↓								
Start Purge (hrs): 0910								
End Purge (hrs): 0930								
Total Purge Time (min): 20								
Total Vol. Purged (gal/L): 5.0								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements		Collected
VOCs	HCL		2 X 40 ml vials	yes (4)

OBSERVATIONS / NOTES:

- No odors, stains, or elevated PID readings

Temporary well point screen zone 31 ft to 35 ft.

Circle if Applicable:

MS/MSD	Duplicate ID No.:	Signature(s):
—	FT-DUP02-20110615 (1800 hrs.)	[signature]

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: NWIRP Calverton
Project No.: 112G02045

[] Domestic Well Data
[] Monitoring Well Data
[X] Other Well Type: Temporary Well
[] QA Sample Type:

Sample ID No.: FT-GW424-4145
Sample Location: SB-424
Sampled By: Vince Shickora
C.O.C. No.:
Type of Sample:
[X] Low Concentration
[] High Concentration

SAMPLING DATA:

	Color (Visual)	pH (S.U.)	S.C. (mS/cm)	Temp. (°C)	Turbidity (NTU)	DO (mg/l)	Salinity (%)	ORP
Date: 6-15-11								
Time: 0955								
Method: Peristaltic pump	Brn Tint	6.00	0.182	12.21	155	6.02	0.0	49

PURGE DATA: *(Gallons)*

	Volume	pH	S.C.	Temp.	Turbidity	DO	Salinity	ORP
Date: 6-15-11								
Method: Peristaltic pump	0.5	5.59	0.204	14.19	3555	2.83	0.0	-45
Monitor Reading (ppm): 0.0	2	6.15	0.207	12.43	3568	3.44	0.0	-67
Well Casing Diameter & Material	3.5	6.06	0.184	12.25	887	5.20	0.0	-1
Type: 1" Stainless	5	6.00	0.182	12.21	155	6.02	0.0	49
Total Well Depth (TD): 45'								
Static Water Level (WL): NA								
One Casing Volume(gal/L): ↓								
Start Purge (hrs): 0935								
End Purge (hrs): 0955								
Total Purge Time (min): 20								
Total Vol. Purged (gal/L): 5.0								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements		Collected
VOCs	HCL		2 X 40 ml vials	yes

OBSERVATIONS / NOTES:

- No odors, stains, or elevated PID readings

Temporary well point screen zone 41 ft to 45 ft.

Circle if Applicable:

MS/MSD	Duplicate ID No.:
—	—

Signature(s):

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: NWIRP Calverton
Project No.: 112G02045

[] Domestic Well Data
[] Monitoring Well Data
[X] Other Well Type: Temporary Well
[] QA Sample Type:

Sample ID No.: FT-GW424-5155
Sample Location: SB-424
Sampled By: Vince Shickora
C.O.C. No.:
Type of Sample:
[X] Low Concentration
[] High Concentration

SAMPLING DATA:

Date: 6-15-11	Color (Visual)	pH (S.U.)	S.C. (mS/cm)	Temp. (°C)	Turbidity (NTU)	DO (mg/l)	Salinity (%)	ORP
Time: 1105								
Method: Peristaltic pump	cldy-brn	5.85	0.070	12.70	1301	7.44	0.0	45

PURGE DATA:

Date: 6-15-11	(Gallons) Volume	pH	S.C.	Temp.	Turbidity	DO	Salinity	ORP
Method: Peristaltic pump	0.5	5.99	0.075	13.20	1879	7.75	0.0	50
Monitor Reading (ppm): 0.0	2	5.88	0.070	12.86	1490	7.60	0.0	52
Well Casing Diameter & Material	3.5	5.85	0.070	12.77	1636	7.53	0.0	49
Type: 1" Stainless	5	5.85	0.070	12.70	1301	7.44	0.0	45
Total Well Depth (TD): 55'								
Static Water Level (WL): NA								
One Casing Volume(gal/L): ↓								
Start Purge (hrs): 1045								
End Purge (hrs): 1105								
Total Purge Time (min): 20								
Total Vol. Purged (gal/L): 5.0								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements		Collected
VOCs	HCL		2 X 40 ml vials	yes

OBSERVATIONS / NOTES:

- No odors, stains, or elevated PID readings

Temporary well point screen zone 51 ft to 55 ft.

Circle if Applicable:

MS/MSD	Duplicate ID No.:
—	—

Signature(s):

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: NWIRP Calverton
Project No.: 112G02045

[] Domestic Well Data
[] Monitoring Well Data
[X] Other Well Type: Temporary Well
[] QA Sample Type:

Sample ID No.: FT-GW424-6165
Sample Location: SB-424
Sampled By: Vince Shickora
C.O.C. No.:
Type of Sample:
[X] Low Concentration
[] High Concentration

SAMPLING DATA:

	Color (Visual)	pH (S.U.)	S.C. (mS/cm)	Temp. (°C)	Turbidity (NTU)	DO (mg/l)	Salinity (%)	ORP
Date: 6-15-11								
Time: 1130								
Method: Peristaltic pump	Cldy-Brn	6.05	0.081	12.70	2051	5.30	0.0	31

PURGE DATA: *(Gallons)*

	Volume	pH	S.C.	Temp.	Turbidity	DO	Salinity	ORP
Date: 6-15-11								
Method: Peristaltic pump	0.5	6.02	0.088	12.98	3617	4.71	0.0	13
Monitor Reading (ppm): 0.0	2	6.09	0.083	12.60	3004	5.02	0.0	12
Well Casing Diameter & Material	3.5	6.06	0.080	12.66	2242	5.11	0.0	20
Type: 1" Stainless	5	6.05	0.081	12.70	2051	5.30	0.0	31
Total Well Depth (TD): 65'								
Static Water Level (WL): NA								
One Casing Volume(gal/L): ↓								
Start Purge (hrs): 1110								
End Purge (hrs): 1130								
Total Purge Time (min): 20								
Total Vol. Purged (gal/L): 5.0								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements		Collected
VOCs	HCL		2 X 40 ml vials	YES

OBSERVATIONS / NOTES:

- No odors, stains, or elevated PID readings

Temporary well point screen zone 61 ft to 65 ft.

Circle if Applicable:

MS/MSD	Duplicate ID No.:
—	—

Signature(s):

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: NWIRP Calverton
Project No.: 112G02045

[] Domestic Well Data
[] Monitoring Well Data
[X] Other Well Type: Temporary Well
[] QA Sample Type:

Sample ID No.: FT-GW425-2125
Sample Location: SA-425
Sampled By: Vince Shickora
C.O.C. No.:
Type of Sample:
[X] Low Concentration
[] High Concentration

SAMPLING DATA:

Date: 6-14-11 Time: 0940	Color (Visual)	pH (S.U.)	S.C. (mS/cm)	Temp. (°C)	Turbidity (NTU)	DO (mg/l)	Salinity (%)	ORP
Method: Peristaltic pump	Brn Tint	5.34	0.364	11.21	160	2.55	0.0	84

PURGE DATA: *(Gallons)*

Date: 6-14-11	Volume	pH	S.C.	Temp.	Turbidity	DO	Salinity	ORP
Method: Peristaltic pump	0.5	5.52	0.394	11.85	872	3.61	0.0	77
Monitor Reading (ppm): 0.0	2	5.41	0.369	11.39	529	2.78	0.0	92
Well Casing Diameter & Material	3.5	5.34	0.364	11.28	401	2.69	0.0	87
Type: 1" Stainless	5	5.34	0.364	11.21	160	2.55	0.0	84
Total Well Depth (TD): 25'								
Static Water Level (WL): NA								
One Casing Volume(gal/L): ↓								
Start Purge (hrs): 0920								
End Purge (hrs): 0940								
Total Purge Time (min): 20								
Total Vol. Purged (gal/L): 5.0								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
VOCs	HCL	2 X 40 ml vials	yes

OBSERVATIONS / NOTES:

- No odors, stains, or elevated PID readings

Temporary well point screen zone 21 ft to 25 ft.

Circle if Applicable:

MS/MSD	Duplicate ID No.:
—	—

Signature(s):

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: NWIRP Calverton
Project No.: 112G02045

[] Domestic Well Data
[] Monitoring Well Data
[X] Other Well Type: Temporary Well
[] QA Sample Type:

Sample ID No.: FT-GW425-3135
Sample Location: SB-425
Sampled By: Vince Shickora
C.O.C. No.:
Type of Sample:
[X] Low Concentration
[] High Concentration

SAMPLING DATA:

	Color (Visual)	pH (S.U.)	S.C. (mS/cm)	Temp. (°C)	Turbidity (NTU)	DO (mg/l)	Salinity (%)	ORP
Date: 6-14-11								
Time: 1005								
Method: Peristaltic pump	Brn Tint	5.01	0.499	11.73	130	3.19	0.0	135

PURGE DATA: *(Gallons)*

	Volume	pH	S.C.	Temp.	Turbidity	DO	Salinity	ORP
Date: 6-14-11								
Method: Peristaltic pump	0.5	5.37	0.618	11.81	2417	2.54	0.0	57
Monitor Reading (ppm): 0.0	2	5.10	0.525	11.73	625	2.89	0.0	95
Well Casing Diameter & Material	3.5	4.99	0.514	11.66	395	3.02	0.0	121
Type: 1" Stainless	5	5.01	0.499	11.73	130	3.19	0.0	135
Total Well Depth (TD): 35'								
Static Water Level (WL): NA								
One Casing Volume(gal/L): ↓								
Start Purge (hrs): 0945								
End Purge (hrs): 1005								
Total Purge Time (min): 20								
Total Vol. Purged (gal/L): 5.0								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
VOCs	HCL	2 X 40 ml vials	Yes

OBSERVATIONS / NOTES:

- No odors, stains, or elevated PID readings

Temporary well point screen zone 31 ft to 35 ft.

Circle if Applicable:

MS/MSD	Duplicate ID No.:
—	—

Signature(s):

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: NWIRP Calverton
Project No.: 112G02045

[] Domestic Well Data
[] Monitoring Well Data
[X] Other Well Type: Temporary Well
[] QA Sample Type:

Sample ID No.: FT-GW425-4145
Sample Location: SB-425
Sampled By: Vince Shickora
C.O.C. No.:
Type of Sample:
[X] Low Concentration
[] High Concentration

SAMPLING DATA:

	Color (Visual)	pH (S.U.)	S.C. (mS/cm)	Temp. (^{0}C)	Turbidity (NTU)	DO (mg/l)	Salinity (%)	ORP
Date: 6-14-11								
Time: 1030								
Method: Peristaltic pump	cldy-brn	5.90	0.067	12.05	917	4.88	0.0	33

PURGE DATA: *(Gallons)*

	Volume	pH	S.C.	Temp.	Turbidity	DO	Salinity	ORP
Date: 6-14-11								
Method: Peristaltic pump	0.5	5.79	0.099	12.27	2936	2.80	0.0	4
Monitor Reading (ppm): 0.0	2	5.97	0.075	12.03	1840	3.77	0.0	9
Well Casing Diameter & Material	3.5	5.95	0.066	12.03	1603	4.12	0.0	22
Type: 1" Stainless	5	5.90	0.067	12.05	917	4.88	0.0	33
Total Well Depth (TD): 45'								
Static Water Level (WL): NA								
One Casing Volume(gal/L): ↓								
Start Purge (hrs): 1010								
End Purge (hrs): 1030								
Total Purge Time (min): 20								
Total Vol. Purged (gal/L): 5.0								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
VOCs	HCL	2 X 40 ml vials	yes

OBSERVATIONS / NOTES:

- No odors, stains, or elevated PID readings

Temporary well point screen zone 41 ft to 45 ft.

Circle if Applicable:

MS/MSD	Duplicate ID No.:
—	—

Signature(s):

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: NWIRP Calverton
Project No.:

[] Domestic Well Data
[] Monitoring Well Data
[X] Other Well Type: Temporary Well
[] QA Sample Type:

Sample ID No.: FT-GW425-5155
Sample Location: SB-425
Sampled By: Vince Shickora
C.O.C. No.:
Type of Sample:
[X] Low Concentration
[] High Concentration

SAMPLING DATA:

	Color (Visual)	pH (S.U.)	S.C. (mS/cm)	Temp. (^{0}C)	Turbidity (NTU)	DO (mg/l)	Salinity (%)	ORP
Date: 6-14-11								
Time: 1140								
Method: Peristaltic pump	clay-Brn	6.00	0.063	12.06	961	7.40	0.0	40

PURGE DATA: *(Gallons)*

	Volume	pH	S.C.	Temp.	Turbidity	DO	Salinity	ORP
Date: 6-14-11								
Method: Peristaltic pump	0.5	6.25	0.070	12.79	2874	6.51	0.0	-10
Monitor Reading (ppm): 0.0	2	6.18	0.063	12.28	2136	7.02	0.0	19
Well Casing Diameter & Material	3.5	6.05	0.063	12.04	1704	7.13	0.0	38
Type: 1" Stainless	5	6.00	0.063	12.06	961	7.40	0.0	40
Total Well Depth (TD): 55'								
Static Water Level (WL): NA								
One Casing Volume(gal/L): ↓								
Start Purge (hrs): 1120								
End Purge (hrs): 1140								
Total Purge Time (min): 20								
Total Vol. Purged (gal/L): 5.0								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
VOCs	HCL	3 X 40ML vials	yes

OBSERVATIONS / NOTES:

- No odors, stains, or elevated PID readings

Temporary well point screen zone 51 ft to 55 ft.

Circle if Applicable:

MS/MSD	Duplicate ID No.:
—	—

Signature(s):

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: NWIRP Calverton
Project No.: 112G02045

[] Domestic Well Data
[] Monitoring Well Data
[X] Other Well Type: Temporary Well
[] QA Sample Type:

Sample ID No.: FT-GW425-6165
Sample Location: SB-425
Sampled By: Vince Shickora
C.O.C. No.:
Type of Sample:
[X] Low Concentration
[] High Concentration

SAMPLING DATA:

	Color (Visual)	pH (S.U.)	S.C. (mS/cm)	Temp. (°C)	Turbidity (NTU)	DO (mg/l)	Salinity (%)	ORP
Date: 6-14-11								
Time: 1205								
Method: Peristaltic pump	clay-Brn	6.82	0.100	12.99	2114	2.22	0.0	-135

PURGE DATA:

	(Gallons) Volume	pH	S.C.	Temp.	Turbidity	DO	Salinity	ORP
Date: 6-14-11								
Method: Peristaltic pump	0.5	6.10	0.119	13.38	3307	2.63	0.0	-100
Monitor Reading (ppm): 0.0	2	6.58	0.108	13.22	3174	2.34	0.0	-125
Well Casing Diameter & Material	3.5	6.80	0.103	13.10	2916	2.13	0.0	-141
Type: 1" Stainless	5	6.82	0.100	12.99	2114	2.22	0.0	-135
Total Well Depth (TD): 65'								
Static Water Level (WL): NA								
One Casing Volume(gal/L): ↓								
Start Purge (hrs): 1145								
End Purge (hrs): 1205								
Total Purge Time (min): 20								
Total Vol. Purged (gal/L): 5.0								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements		Collected
VOCs	HCL		2 X 40 ml vials	yes

OBSERVATIONS / NOTES:

- No odors, stains, or elevated PID readings

Temporary well point screen zone 61 ft to 65 ft.

Circle if Applicable:

MS/MSD	Duplicate ID No.:
—	—

Signature(s):

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: NWIRP Calverton
Project No.: 112G02045

[] Domestic Well Data
[] Monitoring Well Data
[X] Other Well Type: Temporary Well
[] QA Sample Type:

Sample ID No.: FT-GW426-2125
Sample Location: SB-426
Sampled By: Vince Shickora
C.O.C. No.:
Type of Sample:
[X] Low Concentration
[] High Concentration

SAMPLING DATA:

	Color (Visual)	pH (S.U.)	S.C. (mS/cm)	Temp. (°C)	Turbidity (NTU)	DO (mg/l)	Salinity (%)	ORP
Date: 6-13-11								
Time: 1403								
Method: Peristaltic pump	clear	3.79	0.264	12.11	22.1		0.0	238

PURGE DATA: *(Gallons)*

	Volume	pH	S.C.	Temp.	Turbidity	DO	Salinity	ORP
Date: 6-13-11								
Method: Peristaltic pump	0.5	4.54	0.250	13.85	350	7.51	0.0	180
Monitor Reading (ppm): 0.6	2	4.11	0.255	12.58	34.6	7.70	0.0	202
Well Casing Diameter & Material	3.5	3.90	0.258	12.27	30.7	7.75	0.0	229
Type: 1" Stainless	5	3.79	0.264	12.11	22.1		0.0	238
Total Well Depth (TD): 25'								
Static Water Level (WL): NA								
One Casing Volume(gal/L): ↓								
Start Purge (hrs): 1343								
End Purge (hrs): 1403								
Total Purge Time (min): 20								
Total Vol. Purged (gal/L): 5.0								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
VOCs	HCL	2 X 40 ml vials	Yes

OBSERVATIONS / NOTES:

- No stains, odors, or elevated PID readings observed.

Temporary well point screen zone 21 ft to 25 ft.

Circle if Applicable:

MS/MSD	Duplicate ID No.:
—	—

Signature(s):

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: NWIRP Calverton
Project No.: 112G02045

[] Domestic Well Data
[] Monitoring Well Data
[X] Other Well Type: Temporary Well
[] QA Sample Type:

Sample ID No.: FT-GW426-31.35
Sample Location: SB-426
Sampled By: Vince Shickora
C.O.C. No.:
Type of Sample:
[X] Low Concentration
[] High Concentration

SAMPLING DATA:

	Color (Visual)	pH (S.U.)	S.C. (mS/cm)	Temp. (°C)	Turbidity (NTU)	DO (mg/l)	Salinity (%)	ORP
Date: 6-13-11								
Time: 14.30								
Method: Peristaltic pump	Brn Tint	4.74	0.055	12.32	82.3	8.33	0.0	193

PURGE DATA: *(Gallons)*

	Volume	pH	S.C.	Temp.	Turbidity	DO	Salinity	ORP
Date: 6-13-11								
Method: Peristaltic pump	0.5	4.85	0.081	12.69	2421	7.92	0.0	128
Monitor Reading (ppm): 0.0	2	4.73	0.060	12.44	262	8.12	0.0	157
Well Casing Diameter & Material	3.5	4.71	0.055	12.37	144	8.29	0.0	180
Type: 1" Stainless	5	4.74	0.055	12.32	82.3	8.33	0.0	193
Total Well Depth (TD): 35'								
Static Water Level (WL): NA								
One Casing Volume(gal/L): ↓								
Start Purge (hrs): 1410								
End Purge (hrs): 1430								
Total Purge Time (min): 20								
Total Vol. Purged (gal/L): 5.0								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
VOCs	HCL	2 X 40 ml vials	yes

OBSERVATIONS / NOTES:

- No odors, stains, or elevated PID readings

Temporary well point screen zone 31 ft to 35 ft.

Circle if Applicable:

MS/MSD	Duplicate ID No.:
—	—

Signature(s):

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: NWIRP Calverton
Project No.: 112G02045

[] Domestic Well Data
[] Monitoring Well Data
[X] Other Well Type: Temporary Well
[] QA Sample Type:

Sample ID No.: FT-GW426-4145
Sample Location: SB-426
Sampled By: Vince Shickora
C.O.C. No.:
Type of Sample:
[X] Low Concentration
[] High Concentration

SAMPLING DATA:

	Color (Visual)	pH (S.U.)	S.C. (mS/cm)	Temp. (^{0}C)	Turbidity (NTU)	DO (mg/l)	Salinity (%)	ORP
Date: 6-13-11								
Time: 1455								
Method: Peristaltic pump	Clear	5.39	0.053	12.43	32.1		0.0	155

PURGE DATA: *(Gallons)*

	Volume	pH	S.C.	Temp.	Turbidity	DO	Salinity	ORP
Date: 6-13-11								
Method: Peristaltic pump	0.5	5.32	0.060	13.03	133.3	8.34	0.0	130
Monitor Reading (ppm): 0.0	2	5.50	0.055	12.65	104	8.61	0.0	133
Well Casing Diameter & Material	3.5	5.44	0.053	12.47	59.4	8.73	0.0	141
Type: 1" Stainless	5	5.39	0.053	12.43	32.1		0.0	155
Total Well Depth (TD): 45'								
Static Water Level (WL): NA								
One Casing Volume(gal/L): ↓								
Start Purge (hrs): 1435								
End Purge (hrs): 1455								
Total Purge Time (min): 20								
Total Vol. Purged (gal/L): 5.0								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
VOCs	HCL	2 X 40 ml vials	Yes (4)

OBSERVATIONS / NOTES:

- No odors, stains, or elevated PID readings

Temporary well point screen zone 41 ft to 45 ft.

Circle if Applicable:

MS/MSD	Duplicate ID No.:
—	FT-DUP01-20110613

1800 hrs

Signature(s):

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: NWIRP Calverton
Project No.: 112G02045

[] Domestic Well Data
[] Monitoring Well Data
[X] Other Well Type: Temporary Well
[] QA Sample Type:

Sample ID No.: FT-GW426-5155
Sample Location: GB-426
Sampled By: Vince Shickora
C.O.C. No.:
Type of Sample:
[X] Low Concentration
[] High Concentration

SAMPLING DATA:

	Color (Visual)	pH (S.U.)	S.C. (mS/cm)	Temp. (°C)	Turbidity (NTU)	DO (mg/l)	Salinity (%)	ORP
Date: 6-13-11								
Time: 1550								
Method: Peristaltic pump	cldy-Brn	5.98	0.077	12.78	1880	3.91	0.0	2

PURGE DATA:

	(Gallons) Volume	pH	S.C.	Temp.	Turbidity	DO	Salinity	ORP
Date: 6-13-11								
Method: Peristaltic pump	0.5	6.13	0.088	14.10	3100	2.97	0.0	-23
Monitor Reading (ppm): 0.0	2	6.09	0.079	12.90	2877	3.51	0.0	-26
Well Casing Diameter & Material	3.5	5.99	0.077	12.71	2143	3.88	0.0	-4
Type: 1" Stainless	5	5.98	0.077	12.78	1880	3.91	0.0	2
Total Well Depth (TD): 55'								
Static Water Level (WL): NA								
One Casing Volume(gal/L): ↓								
Start Purge (hrs): 1530								
End Purge (hrs): 1550								
Total Purge Time (min): 20								
Total Vol. Purged (gal/L): 5.0								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
VOCs	HCL	2 X 40 ml vials	yes (6)

OBSERVATIONS / NOTES:

- No odors, stains, or elevated PID readings

Temporary well point screen zone 51 ft to 55 ft.

Circle if Applicable:

MS/MSD: yes

Duplicate ID No.: —

Signature(s):

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: NWIRP Calverton
Project No.: 112G02045

[] Domestic Well Data
[] Monitoring Well Data
[X] Other Well Type: Temporary Well
[] QA Sample Type:

Sample ID No.: FT-GW426-6165
Sample Location: SB-426
Sampled By: Vince Shickora
C.O.C. No.:
Type of Sample:
[X] Low Concentration
[] High Concentration

SAMPLING DATA:

	Color (Visual)	pH (S.U.)	S.C. (mS/cm)	Temp. (°C)	Turbidity (NTU)	DO (mg/l)	Salinity (%)	ORP
Date: 6-13-11								
Time: 1615								
Method: Peristaltic pump	<1½-Brn	5.87	0.064	12.44	1310	8.64	0.0	65

PURGE DATA:

	Volume (Gallons)	pH	S.C.	Temp.	Turbidity	DO	Salinity	ORP
Date: 6-13-11								
Method: Peristaltic pump	0.5	6.05	0.070	13.39	1760	8.23	0.0	69
Monitor Reading (ppm): 0.0	2	5.98	0.064	12.57	1440	8.40	0.0	68
Well Casing Diameter & Material	3.5	5.90	0.064	12.45	1307	8.57	0.0	66
Type: 1" Stainless	5	5.87	0.064	12.44	1310	8.64	0.0	65
Total Well Depth (TD): 65'								
Static Water Level (WL): NA								
One Casing Volume(gal/L): ↓								
Start Purge (hrs): 1555								
End Purge (hrs): 1615								
Total Purge Time (min): 20								
Total Vol. Purged (gal/L): 5.0								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
VOCs	HCL	2 X 40 ml vials	yes

OBSERVATIONS / NOTES:

- No odors, stains, or elevated PID readings

Temporary well point screen zone 61 ft to 65 ft.

Circle if Applicable:

MS/MSD	Duplicate ID No.:
—	—

Signature(s):

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: NWIRP Calverton
Project No.: 112G02045

[] Domestic Well Data
[] Monitoring Well Data
[X] Other Well Type: Temporary Well
[] QA Sample Type:

Sample ID No.: FT-GW427-2125
Sample Location: SB-427
Sampled By: Vince Shickora
C.O.C. No.:
Type of Sample:
[X] Low Concentration
[] High Concentration

SAMPLING DATA:

	Color (Visual)	pH (S.U.)	S.C. (mS/cm)	Temp. (^{0}C)	Turbidity (NTU)	DO (mg/l)	Salinity (%)	ORP
Date: 6-13-11								
Time: 1010								
Method: Peristaltic pump	Brn Tint	5.13	0.143	14.30	76.5	7.18	0.0	137

PURGE DATA:

	(Gallons) Volume	pH	S.C.	Temp.	Turbidity	DO	Salinity	ORP
Date: 6-13-11								
Method: Peristaltic pump	0.5	5.69	0.185	15.34	1257	6.83	0.0	90
Monitor Reading (ppm): 0.0	2	5.48	0.146	14.44	151	7.04	0.0	112
Well Casing Diameter & Material	3.5	5.27	0.144	14.29	94.3	7.11	0.0	128
Type: 1" Stainless	5	5.13	0.143	14.30	76.5	7.18	0.0	137
Total Well Depth (TD): 25'								
Static Water Level (WL): NA								
One Casing Volume(gal/L): ↓								
Start Purge (hrs): 0950								
End Purge (hrs): 1010								
Total Purge Time (min): 20								
Total Vol. Purged (gal/L): 5.0								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
VOCs	HCL	2 X 40 ml vials	Yes

OBSERVATIONS / NOTES:

- No odors, stains, or elevated PID readings

Temporary well point screen zone 21 ft to 25 ft.

Circle if Applicable:

MS/MSD	Duplicate ID No.:
—	—

Signature(s):

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: NWIRP Calverton
Project No.: 112G02045

[] Domestic Well Data
[] Monitoring Well Data
[X] Other Well Type: Temporary Well
[] QA Sample Type:

Sample ID No.: FT-GW427-3135
Sample Location: SB427
Sampled By: Vince Shickora
C.O.C. No.:
Type of Sample:
[X] Low Concentration
[] High Concentration

SAMPLING DATA:

	Color (Visual)	pH (S.U.)	S.C. (mS/cm)	Temp. (°C)	Turbidity (NTU)	DO (mg/l)	Salinity (%)	ORP
Date: 6-13-11								
Time: 1040								
Method: Peristaltic pump	Brn Tint	4.70	0.116	12.71	104	7.21	0.0	183

PURGE DATA: *(Gallons)*

	Volume	pH	S.C.	Temp.	Turbidity	DO	Salinity	ORP
Date: 6-13-11								
Method: Peristaltic pump	0.5	5.11	0.130	13.87	2127	6.89	0.0	137
Monitor Reading (ppm): 0.0	2	4.97	0.121	13.01	327	6.94	0.0	156
Well Casing Diameter & Material	3.5	4.81	0.115	12.88	290	7.02	0.0	170
Type: 1" Stainless	5	4.70	0.116	12.71	104	7.21	0.0	183
Total Well Depth (TD): 35'								
Static Water Level (WL): NA								
One Casing Volume(gal/L): ↓								
Start Purge (hrs): 1020								
End Purge (hrs): 1040								
Total Purge Time (min): 20								
Total Vol. Purged (gal/L): 5.0								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
VOCs	HCL	2 X 40 ml vials	Yes

OBSERVATIONS / NOTES:

- No odors, stains, or elevated PID readings

Temporary well point screen zone 31 ft to 35 ft.

Circle if Applicable:

MS/MSD	Duplicate ID No.:
—	—

Signature(s):

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: NWIRP Calverton
Project No.: 112G02045

[] Domestic Well Data
[] Monitoring Well Data
[X] Other Well Type: Temporary Well
[] QA Sample Type:

Sample ID No.: FT-GW427-4145
Sample Location: SB-427
Sampled By: Vince Shickora
C.O.C. No.:
Type of Sample:
[X] Low Concentration
[] High Concentration

SAMPLING DATA:

	Color (Visual)	pH (S.U.)	S.C. (mS/cm)	Temp. (°C)	Turbidity (NTU)	DO (mg/l)	Salinity (%)	ORP
Date: 6-13-11								
Time: 1105								
Method: Peristaltic pump	Brn Tint	5.39	0.046	12.55			0.0	126

PURGE DATA: *(Gallons)*

	Volume	pH	S.C.	Temp.	Turbidity	DO	Salinity	ORP
Date: 6-13-11								
Method: Peristaltic pump	0.5	5.27	0.089	13.49	2994	4.50	0.0	39
Monitor Reading (ppm): 0.0	2	5.50	0.063	12.74	2007	4.89	0.0	77
Well Casing Diameter & Material	3.5	5.45	0.051	12.50	872	5.11	0.0	102
Type: 1" Stainless	5	5.39	0.046	12.55	162		0.0	126
Total Well Depth (TD): 45'								
Static Water Level (WL): NA								
One Casing Volume(gal/L): ↓								
Start Purge (hrs): 1045								
End Purge (hrs): 1105								
Total Purge Time (min): 20								
Total Vol. Purged (gal/L): 5.0								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
VOCs	HCL	2 X 40 ml vials	Yes

OBSERVATIONS / NOTES:

- No odors, stains, or elevated PID readings

Temporary well point screen zone 41 ft to 45 ft.

Circle if Applicable:

MS/MSD	Duplicate ID No.:
—	—

Signature(s):

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: NWIRP Calverton
Project No.: 112G02045

[] Domestic Well Data
[] Monitoring Well Data
[X] Other Well Type: Temporary Well
[] QA Sample Type:

Sample ID No.: FT-GW427-5155
Sample Location: SB-427
Sampled By: Vince Shickora
C.O.C. No.:
Type of Sample:
[X] Low Concentration
[] High Concentration

SAMPLING DATA:

	Color (Visual)	pH (S.U.)	S.C. (mS/cm)	Temp. (^{0}C)	Turbidity (NTU)	DO (mg/l)	Salinity (%)	ORP
Date: 6-13-11								
Time: 1220								
Method: Peristaltic pump	Cldy-Brn	5.58	0.063	13.37	1681		0.0	75

PURGE DATA: *(Gallons)*

	Volume	pH	S.C.	Temp.	Turbidity	DO	Salinity	ORP
Date: 6-13-11								
Method: Peristaltic pump	0.5	5.87	0.075	14.44	3030	5.80	0.0	17
Monitor Reading (ppm): 0.0	2	5.81	0.069	13.80	2167	5.61	0.0	30
Well Casing Diameter & Material	3.5	5.74	0.062	13.35	2009	5.79	0.0	68
Type: 1" Stainless	5	5.58	0.063	13.37	1681		0.0	75
Total Well Depth (TD): 55'								
Static Water Level (WL): NA								
One Casing Volume(gal/L): ↓								
Start Purge (hrs): 1200								
End Purge (hrs): 1220								
Total Purge Time (min): 20								
Total Vol. Purged (gal/L): 5.0								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
VOCs	HCL	2 X 40 ml vials	yes

OBSERVATIONS / NOTES:

- No odors, stains, or elevated PID readings

Temporary well point screen zone 51 ft to 55 ft.

Circle if Applicable:

MS/MSD	Duplicate ID No.:
—	—

Signature(s):

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: NWIRP Calverton
Project No.: 112G02045

[] Domestic Well Data
[] Monitoring Well Data
[X] Other Well Type: Temporary Well
[] QA Sample Type:

Sample ID No.: FT-GW427-6165
Sample Location: GW-427
Sampled By: Vince Shickora
C.O.C. No.:
Type of Sample:
[X] Low Concentration
[] High Concentration

SAMPLING DATA:

	Color (Visual)	pH (S.U.)	S.C. (mS/cm)	Temp. (^{0}C)	Turbidity (NTU)	DO (mg/l)	Salinity (%)	ORP
Date: 6-13-11								
Time: 1245								
Method: Peristaltic pump	cldy-Brn	6.05	0.068	13.23	1676	4.53	0.0	35

PURGE DATA:

	(Gallons) Volume	pH	S.C.	Temp.	Turbidity	DO	Salinity	ORP
Date: 6-13-11								
Method: Peristaltic pump	0.5	5.87	0.076	14.40	3414	3.47	0.0	-10
Monitor Reading (ppm): 0.0	2	6.04	0.071	13.87	2666	3.60	0.0	-5
Well Casing Diameter & Material	3.5	6.08	0.067	13.30	2094	4.02	0.0	23
Type: 1" Stainless	5	6.05	0.068	13.23	1676	4.53	0.0	35
Total Well Depth (TD): 65'								
Static Water Level (WL): NA								
One Casing Volume(gal/L): ↓								
Start Purge (hrs): 1225								
End Purge (hrs): 1245								
Total Purge Time (min): 20								
Total Vol. Purged (gal/L): 5.0								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
VOCs	HCL	2 X 40 ml vials	yes

OBSERVATIONS / NOTES:

- No odors, stains, or elevated PID readings

Temporary well point screen zone 61 ft to 65 ft.

Circle if Applicable:

MS/MSD	Duplicate ID No.:
—	—

Signature(s):

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: NWIRP Calverton
Project No.: ~~112G02045~~ 112G02750

[] Domestic Well Data
[] Monitoring Well Data
[X] Other Well Type: Temporary Well
[] QA Sample Type:

Sample ID No.: FT-GW428-2125
Sample Location: FT-TW428
Sampled By: Jacob Birkett
C.O.C. No.:
Type of Sample:
[X] Low Concentration
[] High Concentration

SAMPLING DATA:

	Color (Visual)	pH (S.U.)	S.C. (mS/cm)	Temp. (°C)	Turbidity (NTU)	DO (mg/l)	Salinity (%)	Other ORP (mV)
Date: 10-13-11								
Time: 1333								
Method: Peristaltic Pump	clear	5.78	0.082	13.51	10.67	—	—	99

PURGE DATA:

	Volume	pH	S.C.	Temp.	Turbidity	DO	Salinity	Other ORP
Date: 10-13-11								
Method: Peristaltic Pump	0.5 gal	5.94	0.078	13.96	65.6	5.86	—	75
Monitor Reading (ppm): 0.0	2	5.78	0.084	13.66	35.3	5.13	—	87
Well Casing Diameter & Material	3.5	5.68	0.083	13.66	20.5	5.68	—	95
Type: 1" Stainless Steel	5 gal	5.78	0.082	13.51	10.67	—	—	99
Total Well Depth (TD): 25								
Static Water Level (WL): —								
One Casing Volume(gal/L): —								
Start Purge (hrs): 1308								
End Purge (hrs): 1333								
Total Purge Time (min): 25								
Total Vol. Purged (gal/L): 5 gal								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
VOCs	HCl	2 - 40mL glass vials	yes

OBSERVATIONS / NOTES:

No stains, odors, or elevated PID readings

No bubbles

purge rate ~ 625 mL/min

Temporary well point seen zone 21 ft to 25 ft bgs

Pull tubing 1.5' off bottom

Circle if Applicable:

MS/MSD	Duplicate ID No.:
—	—

Signature(s): Jacob Birkett

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: NWIRP Calverton
Project No.: ~~412G02045~~ 112G02750

[] Domestic Well Data
[] Monitoring Well Data
[X] Other Well Type: Temporary Well
[] QA Sample Type:

Sample ID No.: FT-GW428-3135
Sample Location: FT-TW428
Sampled By: Jacob Birkett
C.O.C. No.:
Type of Sample:
[X] Low Concentration
[] High Concentration

SAMPLING DATA:

	Color (Visual)	pH (S.U.)	S.C. (mS/cm)	Temp. (^{0}C)	Turbidity (NTU)	DO (mg/l)	Salinity (%)	Other ORP (mV)
Date: 10-13-11								
Time: 1303								
Method: Peristaltic Pump	clear	5.85	0.029	13.09	48.6	—	—	78

PURGE DATA:

	Volume	pH	S.C.	Temp.	Turbidity	DO	Salinity	Other ORP
Date: 10-13-11								
Method: Peristaltic Pump	0.5 gal	5.47	0.046	13.32	5.93 ← Over Range		—	30
Monitor Reading (ppm): 0.0	2	5.83	0.032	13.06	1009 NU	8.36	—	43
Well Casing Diameter & Material	3.5	5.79	0.029	13.17	93.3	8.14	—	71
Type: 1" Stainless Steel	5 gal	5.85	0.029	13.09	48.6	—	—	78
Total Well Depth (TD): 35								
Static Water Level (WL): —								
One Casing Volume(gal/L): —								
Start Purge (hrs): 1238								
End Purge (hrs): 1303								
Total Purge Time (min): 25								
Total Vol. Purged (gal/L): 5 gal								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
VOCs	HCl	6 ~~2~~ 40mL glass vials	

OBSERVATIONS / NOTES:

No stains, odors, or elevated PID readings

very few small bubbles in tubing

purge rate ~625 mL/min

Temporary well point seen zone 31 ft to 35 ft bgs

Pull tubing 1.5' off bottom

Circle if Applicable:

MS/MSD	Duplicate ID No.:
yes	—

Signature(s): [signature]

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: NWIRP Calverton
Project No.: ~~112G02045~~ 112G02750

[] Domestic Well Data
[] Monitoring Well Data
[X] Other Well Type: Temporary Well
[] QA Sample Type:

Sample ID No.: FT-GW428-4145
Sample Location: FT-TW428
Sampled By: Jacob Birkett
C.O.C. No.:
Type of Sample:
[X] Low Concentration
[] High Concentration

SAMPLING DATA:

	Color (Visual)	pH (S.U.)	S.C. (mS/cm)	Temp. (^{0}C)	Turbidity (NTU)	DO (mg/l)	Salinity (%)	Other ORP (mV)
Date: 10-13-11								
Time: 1235								
Method: Peristaltic Pump	tan w/silt	5.72	0.013	13.30	1479 AU	—	—	74

PURGE DATA:

	Volume	pH	S.C.	Temp.	Turbidity	DO	Salinity	Other ORP
Date: 10-13-11								
Method: Peristaltic Pump	0.5 gal	6.44	0.023	15.41	918 AU	5.56	—	31
Monitor Reading (ppm): 0.0	2	6.12	0.013	14.12	965 AU	7.60	—	49
Well Casing Diameter & Material	3.5	5.83	0.013	13.74	1427 AU	8.34	—	70
Type: 1" Stainless Steel	5 gal	5.72	0.013	13.30	1479 AU	—	—	74
Total Well Depth (TD): 45								
Static Water Level (WL): —								
One Casing Volume(gal/L): —								
Start Purge (hrs): 1210								
End Purge (hrs): 1235								
Total Purge Time (min): 25								
Total Vol. Purged (gal/L): 5 gal								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
VOCs	HCl	2 - 40mL glass vials	yes

OBSERVATIONS / NOTES:

No stains, odors, or elevated PID readings

Temporary well point seen zone 41 ft to 45 ft bgs

Pull tubing 1.5' off bottom

Very few small bubbles in tubing

purge rate ~600 mL/min

Circle if Applicable:

MS/MSD	Duplicate ID No.:
—	—

Signature(s):

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: NWIRP Calverton
Project No.: ~~112G02045~~ 112G02750

[] Domestic Well Data
[] Monitoring Well Data
[X] Other Well Type: Temporary Well
[] QA Sample Type:

Sample ID No.: FT-GW428-5155
Sample Location: FT-TW428
Sampled By: Jacob Birkett
C.O.C. No.:
Type of Sample:
[X] Low Concentration
[] High Concentration

SAMPLING DATA:

	Color (Visual)	pH (S.U.)	S.C. (mS/cm)	Temp. (°C)	Turbidity (NTU)	DO (mg/l)	Salinity (%)	Other ORP (mV)
Date: 10-13-11								
Time: 1055								
Method: Peristaltic Pump	tan w/silt	5.83	0.019	12.37	4024 AU	—	—	40

PURGE DATA:

	Volume	pH	S.C.	Temp.	Turbidity	DO	Salinity	Other ORP
Date: 10-13-11								
Method: Peristaltic Pump	0.5 gal	6.08	0.026	12.82	Over range	5.08	—	2
Monitor Reading (ppm): 0.0	2	6.01	0.022	12.55	" "	6.30	—	9
Well Casing Diameter & Material	3.5	6.09	0.020	12.49	" "	7.44	—	27
Type: 1" Stainless Steel	4.5 gal	5.83	0.019	12.37	4024 AU	—	—	40
Total Well Depth (TD): 55								
Static Water Level (WL): —								
One Casing Volume(gal/L): —								
Start Purge (hrs): 1030								
End Purge (hrs): 1055								
Total Purge Time (min): 25								
Total Vol. Purged (gal/L): 4.5 gal								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
VOCs	HCl	2 - 40mL glass vials	yes

OBSERVATIONS / NOTES:

No stains, odors, or elevated PID readings

very few bubbles in tubing

Temporary well point seen zone 51 ft to 55 ft bgs

purge rate - 550mL/min

Pull tubing 1.5' off bottom

Circle if Applicable:

MS/MSD	Duplicate ID No.:
—	—

Signature(s):

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: NWIRP Calverton
Project No.: ~~112G02045~~ 112G02750

[] Domestic Well Data
[] Monitoring Well Data
[X] Other Well Type: Temporary Well
[] QA Sample Type:

Sample ID No.: FT-GW428-6165
Sample Location: FT-TW 428
Sampled By: Jacob Birkett
C.O.C. No.:
Type of Sample:
[X] Low Concentration
[] High Concentration

SAMPLING DATA:

	Color (Visual)	pH (S.U.)	S.C. (mS/cm)	Temp. (°C)	Turbidity (NTU)	DO (mg/l)	Salinity (%)	Other ORP (mV)
Date: 10-13-11								
Time: 1027								
Method: Peristaltic Pump	tan w/silt	6.30	0.025	12.61	Over range	—	—	-1

PURGE DATA:

	Volume	pH	S.C.	Temp.	Turbidity	DO	Salinity	Other ORP
Date: 10-13-11								
Method: Peristaltic Pump	0.5 gal	6.99	0.040	13.13	Over range	5.56	—	-95
Monitor Reading (ppm): 0.0	2	6.62	0.029	12.80	" "	5.12	—	-41
Well Casing Diameter & Material	3.5	6.55	0.026	12.74	" "	6.63	—	-19
Type: 1" Stainless Steel	4.5 gal	6.30	0.025	12.61	" "	—	—	-1
Total Well Depth (TD): 65								
Static Water Level (WL):								
One Casing Volume(gal/L):								
Start Purge (hrs): 1001								
End Purge (hrs): 1027								
Total Purge Time (min): 26								
Total Vol. Purged (gal/L): 4.5 gal								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
VOCs	HCl	2 - 40mL glass vials	yes

OBSERVATIONS / NOTES:

No stains, odors, or elevated PID readings

Very few air bubbles in tubing

Temporary well point seen zone 61 ft to 65 ft bgs

purge rate ~ 525mL/min

Pull tubing 1.5' off bottom

Circle if Applicable:

MS/MSD	Duplicate ID No.:
—	—

Signature(s):

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: NWIRP Calverton
Project No.: ~~112G02045~~ 112G02750

[] Domestic Well Data
[] Monitoring Well Data
[X] Other Well Type: Temporary Well
[] QA Sample Type:

Sample ID No.: JB 10-13-11 428-7175 FT-GW48
Sample Location: FT-TW428
Sampled By: Jacob Birkett
C.O.C. No.:
Type of Sample:
[X] Low Concentration
[] High Concentration

SAMPLING DATA:

	Color (Visual)	pH (S.U.)	S.C. (mS/cm)	Temp. (^{0}C)	Turbidity (NTU)	DO (mg/l)	Salinity (%)	Other ORP (mv)
Date: 10-13-11								
Time: 1000								
Method: Peristaltic Pump	tan w/ silt and sand	7.09	0.172	13.33	Over range	—	—	-173

PURGE DATA:

	Volume	pH	S.C.	Temp.	Turbidity	DO	Salinity	Other ORP
Date: 10-13-11								
Method: Peristaltic Pump	0.5 gal	5.49	0.308	14.57	Over range	0.59	—	-49
Monitor Reading (ppm): 0.0	2	6.45	0.182	13.63	Over range	0.48	—	-127
Well Casing Diameter & Material	3.5	6.84	0.171	13.34	" "	0.31	—	-154
Type: 1" Stainless Steel	4.5 gal	7.09	0.172	13.33	" "	—	—	-173
Total Well Depth (TD): 75								
Static Water Level (WL): —								
One Casing Volume(gal/L): —								
Start Purge (hrs): 0929								
End Purge (hrs): 1000								
Total Purge Time (min): 31								
Total Vol. Purged (gal/L): 4.5 gal								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
VOCs	HCl	2 - 40mL glass vials	yes

OBSERVATIONS / NOTES:

No stains, odors or elevated PID reading

Temporary well point seen zone 71 ft to 75 ft bgs

Poll tubing 1.5' off bottom

Few bubbles in tubing

purge rate ~400mL min

Water level probably drawing down due to poor producing formation

Circle if Applicable:

MS/MSD	Duplicate ID No.:
—	—

Signature(s): [signature]

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: NWIRP Calverton
Project No.: 112G02750

[] Domestic Well Data
[] Monitoring Well Data
[X] Other Well Type: Temporary Well Groundwater Grab
[] QA Sample Type:

Sample ID No.: FT-GW 429-2125
Sample Location: FT-TW 429
Sampled By: J. Birkett
C.O.C. No.:
Type of Sample:
[x] Low Concentration
[] High Concentration

SAMPLING DATA:

	Color (Visual)	pH (S.U.)	S.C. (mS/cm)	Temp. (°C)	Turbidity (NTU)	DO (mg/l)	Salinity (%)	ORP (mV)
Date: 10-14-11								
Time: 1053								
Method: Peristaltic pump	Clear	4.94	0.050	15.00	32.8	—	—	202

PURGE DATA:

	Volume	pH	S.C.	Temp.	Turbidity	DO	Salinity	ORP
Date: 10-14-11								
Method: Peristaltic pump	0.5 gal	5.61	0.054	14.51	3844 NU	5.61	—	102
Monitor Reading (ppm): —	2	5.15	0.051	14.36	88.1	5.35	—	156
Well Casing Diameter & Material	3.5	5.00	0.049	14.29	64.2	4.83	—	178
Type: 1" stainless steel	5 gal	4.94	0.050	15.00	32.8	—	—	202
Total Well Depth (TD): 25								
Static Water Level (WL): —								
One Casing Volume(gal/L): —								
Start Purge (hrs): 1026								
End Purge (hrs): 1053								
Total Purge Time (min): 27								
Total Vol. Purged (gal/L): 5 gal								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
VOCs	HCl	2 - 40ml glass vials	yes

OBSERVATIONS / NOTES:

No stains or odors observed
Temporary Well screen set from 21 ft to 25 ft bgs
Pull tubing 1.5 ft off bottom
Purge Rate: 550 mL/min

Circle if Applicable:

MS/MSD	Duplicate ID No.:
—	—

Signature(s): J. Birkett

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: NWIRP Calverton
Project No.: 112G02750

[] Domestic Well Data
[] Monitoring Well Data
[X] Other Well Type: Temporary Well Groundwater Grab
[] QA Sample Type:

Sample ID No.: FT-GW 429-3135
Sample Location: FT-TW 429
Sampled By: J. Birkett
C.O.C. No.:
Type of Sample:
[x] Low Concentration
[] High Concentration

SAMPLING DATA:

Date: 10-14-11	Color	pH	S.C.	Temp.	Turbidity	DO	Salinity	ORP
Time: 1020	(Visual)	(S.U.)	(mS/cm)	(°C)	(NTU)	(mg/l)	(%)	(mV)
Method: Peristaltic pump	Clear	5.45	0.034	13.73	27.7	—	—	93

PURGE DATA:

Date: 10-14-11	Volume	pH	S.C.	Temp.	Turbidity	DO	Salinity	ORP
Method: Peristaltic pump	0.5 gal	5.27	0.044	14.51	Overrange	8.15	—	56
Monitor Reading (ppm): —	2	5.34	0.035	14.02	79.2	9.03	—	86
Well Casing Diameter & Material	3.5	5.76	0.034	13.86	47.4	7.96	—	88
Type: 1" stainless steel	5 gal	5.45	0.034	13.73	27.7	—	—	93
Total Well Depth (TD): 35								
Static Water Level (WL):								
One Casing Volume(gal/L):								
Start Purge (hrs): 0954								
End Purge (hrs): 1020								
Total Purge Time (min): 26								
Total Vol. Purged (gal/L): 5 gal								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
VOCs	HCl	2 - 40ml glass vials	yes

OBSERVATIONS / NOTES:

No stains or odors observed
Temporary Well screen set from 31 ft to 35 ft bgs
Pull tubing 1.5 ft off bottom
Purge Rate: 550 mL/min

Circle if Applicable:

MS/MSD —

Duplicate ID No.: 0830
FT-Dup02-20111014

Signature(s): J. Birkett

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: NWIRP Calverton
Project No.: 112G02750

[] Domestic Well Data
[] Monitoring Well Data
[X] Other Well Type: Temporary Well Groundwater Grab
[] QA Sample Type:

Sample ID No.: FT-GW429-4145
Sample Location: FT-TW429
Sampled By: J. Birkett
C.O.C. No.:
Type of Sample:
[x] Low Concentration
[] High Concentration

SAMPLING DATA:

	Color (Visual)	pH (S.U.)	S.C. (mS/cm)	Temp. (°C)	Turbidity (NTU)	DO (mg/l)	Salinity (%)	ORP (mV)
Date: 10-14-11								
Time: 0953								
Method: Peristaltic pump	tan w/silt	5.09	0.007	14.27	3498 AU	—	—	76

PURGE DATA:

	Volume	pH	S.C.	Temp.	Turbidity	DO	Salinity	ORP
Date: 10-14-11								
Method: Peristaltic pump	0.5 gal	5.14	0.121	15.99	Over Range	6.54	—	135
Monitor Reading (ppm): —	2	4.89	0.014	14.93	" "	5.94	—	55
Well Casing Diameter & Material	3.5	5.07	0.010	14.44	" "	5.31	—	73
Type: 1" stainless steel	5 gal	5.09	0.007	14.27	3498 AU	—	—	76
Total Well Depth (TD): 45								
Static Water Level (WL): —								
One Casing Volume(gal/L): —								
Start Purge (hrs): 0922								
End Purge (hrs): 0953								
Total Purge Time (min): 31								
Total Vol. Purged (gal/L): 5 gal								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
VOCs	HCl	2 - 40ml glass vials	yes

OBSERVATIONS / NOTES:

No stains or odors observed
Temporary Well screen set from 41 ft to 45 ft bgs
Pull tubing 1.5 ft off bottom
Purge Rate: ~500mL/min

Circle if Applicable:

MS/MSD	Duplicate ID No.:
—	—

Signature(s):

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: NWIRP Calverton
Project No.: ~~112G02045~~ 112G02750

[] Domestic Well Data
[] Monitoring Well Data
[X] Other Well Type: Temporary Well
[] QA Sample Type:

Sample ID No.: FT-GW429-5155
Sample Location: FT-TW429
Sampled By: Jacob Birkett
C.O.C. No.:
Type of Sample:
[X] Low Concentration
[] High Concentration

SAMPLING DATA:

	Color (Visual)	pH (S.U.)	S.C. (mS/cm)	Temp. (°C)	Turbidity (NTU)	DO (mg/l)	Salinity (%)	Other ORP (mV)
Date: 10-13-11								
Time: 1644								
Method: Peristaltic Pump	tan w/silt	5.86	0.016	12.53	OverRange	—	—	58

PURGE DATA:

	Volume	pH	S.C.	Temp.	Turbidity	DO	Salinity	Other ORP
Date: 10-13-11								
Method: Peristaltic Pump	0.5 gal	6.03	0.035	12.93	Overrange	6.54	—	15
Monitor Reading (ppm): 0.0	2	5.87	0.022	12.65	" "	6.11	—	22
Well Casing Diameter & Material	3.5	5.82	0.018	12.52	" "	6.03	—	36
Type: 1" Stainless Steel	5 gal	5.86	0.016	12.53	" "	—	—	58
Total Well Depth (TD): 55								
Static Water Level (WL): —								
One Casing Volume(gal/L): —								
Start Purge (hrs): 1619								
End Purge (hrs): 1644								
Total Purge Time (min): 25								
Total Vol. Purged (gal/L): 5 gal								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
VOCs	HCl	2 - 40mL glass vials	yes

OBSERVATIONS / NOTES:

No stains, odors, or elevated PID readings

very few small bubbles in tubing

Temporary well point seen zone 51 ft to 55 ft bgs

purge rate ~ 600mL/min

Pull tubing 1.5' off bottom

initial 5 min purgewater was dark brown (not tan)

Circle if Applicable:

MS/MSD	Duplicate ID No.:
—	—

Signature(s): Jacob Birkett

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: NWIRP Calverton
Project No.: ~~112G02045~~ 112G02750

[] Domestic Well Data
[] Monitoring Well Data
[X] Other Well Type: Temporary Well
[] QA Sample Type:

Sample ID No.: FT-GW429-6165
Sample Location: FT-TW429
Sampled By: Jacob Birkett
C.O.C. No.:
Type of Sample:
[X] Low Concentration
[] High Concentration

SAMPLING DATA:

	Color (Visual)	pH (S.U.)	S.C. (mS/cm)	Temp. (°C)	Turbidity (NTU)	DO (mg/l)	Salinity (%)	Other ORP (mV)
Date: 10-13-11								
Time: 1616								
Method: Peristaltic Pump	tan w/silt	5.92	0.020	12.61	Over range	—	—	57

PURGE DATA:

	Volume	pH	S.C.	Temp.	Turbidity	DO	Salinity	Other ORP
Date: 10-13-11								
Method: Peristaltic Pump	0.5 gal	7.39	0.044	13.13	Over range	5.68	—	-94
Monitor Reading (ppm): 0.0	2	6.45	0.023	12.89	" "	6.13	—	8
Well Casing Diameter & Material	3.5	6.13	0.020	12.80	" "	6.71	—	45
Type: 1" Stainless Steel	5 gal	5.92	0.020	12.61	" "	—	—	57
Total Well Depth (TD): 65								
Static Water Level (WL): —								
One Casing Volume(gal/L): —								
Start Purge (hrs): 1551								
End Purge (hrs): 1616								
Total Purge Time (min): 25								
Total Vol. Purged (gal/L): 5 gal								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
VOCs	HCl	2 - 40mL glass vials	yes

OBSERVATIONS / NOTES:

No stains, odors, or elevated PID readings

Temporary well point seen zone 61 ft to 65 ft bgs

Pull tubing 1.5' off bottom

very few small bubbles in tubing

purge rate ~ 600mL/min

Circle if Applicable:

MS/MSD	Duplicate ID No.:
—	—

Signature(s): Jacob Birkett

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: NWIRP Calverton
Project No.: ~~112G02045~~ 112G02750

[] Domestic Well Data
[] Monitoring Well Data
[X] Other Well Type: Temporary Well
[] QA Sample Type:

Sample ID No.: FT-GW429-7175
Sample Location: FT-TW429
Sampled By: Jacob Birkett
C.O.C. No.:
Type of Sample:
[X] Low Concentration
[] High Concentration

SAMPLING DATA:

Date: 10-13-11	Color (Visual)	pH (S.U.)	S.C. (mS/cm)	Temp. (°C)	Turbidity (NTU)	DO (mg/l)	Salinity (%)	Other ORP (mV)
Time: 1544								
Method: Peristaltic Pump	hazy/silt	7.44	0.244	12.95	Over range	—	—	-168

PURGE DATA:

Date: 10-13-11	Volume	pH	S.C.	Temp.	Turbidity	DO	Salinity	Other ORP
Method: Peristaltic Pump	0.5 gal	6.61	0.241	14.90	Over range	1.61	—	-178
Monitor Reading (ppm): 0.0	2	6.97	0.244	13.69	" "	0.00	—	-187
Well Casing Diameter & Material	3.5	7.34	0.242	13.26	" "	0.00	—	-177
Type: 1" Stainless Steel	4.5 gal	7.44	0.244	12.95	" "	—	—	-168
Total Well Depth (TD): 75								
Static Water Level (WL):								
One Casing Volume(gal/L):								
Start Purge (hrs): 1517								
End Purge (hrs): 1544								
Total Purge Time (min): 27								
Total Vol. Purged (gal/L): 4.5 gal								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
VOCs	HCl	2 - 40mL glass vials	yes

OBSERVATIONS / NOTES:

No stains, odors, or elevated PID readings

Temporary well point seen zone 71 ft to 75 ft bgs

Pull tubing 1.5' off bottom

purge rate ~550 mL/min

very few bubbles in tubing

Circle if Applicable:

MS/MSD	Duplicate ID No.: (1100)
—	FT-Dup01-20111013

Signature(s): Jacob Birkett

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: NWIRP Calverton
Project No.: 112G02750

[] Domestic Well Data
[] Monitoring Well Data
[X] Other Well Type: Temporary Well Groundwater Grab
[] QA Sample Type:

Sample ID No.: FT-GW 430-2125
Sample Location: FT-TW 430
Sampled By: J. Birkett
C.O.C. No.:
Type of Sample:
[x] Low Concentration
[] High Concentration

SAMPLING DATA:

Date: 10-17-11	Color	pH	S.C.	Temp.	Turbidity	DO	Salinity	ORP
Time: 1608	(Visual)	(S.U.)	(mS/cm)	(°C)	(NTU)	(mg/l)	(%)	(mV)
Method: Peristaltic pump	clear	4.43	0.011	13.48	61.7	—	—	240

PURGE DATA:

Date: 10-17-11	Volume	pH	S.C.	Temp.	Turbidity	DO	Salinity	ORP
Method: Peristaltic pump	0.5 gal	5.45	0.013	14.01	169	10.35	—	154
Monitor Reading (ppm): 0.0	2	5.01	0.012	14.21	102	8.41	—	206
Well Casing Diameter & Material	3.5	4.58	0.011	13.79	125	7.30	—	226
Type: 1" stainless steel	4.5 gal	4.43	0.011	13.48	61.7	—	—	240
Total Well Depth (TD): 25								
Static Water Level (WL): —								
One Casing Volume(gal/L): —								
Start Purge (hrs): 1543								
End Purge (hrs): 1608								
Total Purge Time (min): 25								
Total Vol. Purged (gal/L): 4.5gal								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
VOCs	HCl	2 - 40ml glass vials	yes

OBSERVATIONS / NOTES:

No stains, odors, or elevated PID readings

Very few small bubbles in tubing

Temporary Well screen set from 21 ft to 25 ft bgs
Pull tubing 1.5 ft off bottom
Purge Rate: 600mL/min

Circle if Applicable:

MS/MSD	Duplicate ID No.:
—	—

Signature(s):

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: NWIRP Calverton
Project No.: 112G02750

[] Domestic Well Data
[] Monitoring Well Data
[X] Other Well Type: Temporary Well Groundwater Grab
[] QA Sample Type:

Sample ID No.: FT-GW 430-3135
Sample Location: FT-TW 430
Sampled By: J. Birkett
C.O.C. No.:
Type of Sample:
[x] Low Concentration
[] High Concentration

SAMPLING DATA:

Date: 10-17-11	Color	pH	S.C.	Temp.	Turbidity	DO	Salinity	ORP
Time: 1540	(Visual)	(S.U.)	(mS/cm)	(°C)	(NTU)	(mg/l)	(%)	(mV)
Method: Peristaltic pump	tan tint	5.85	0.008	13.31	215	—	—	110

PURGE DATA:

Date: 10-17-11	Volume	pH	S.C.	Temp.	Turbidity	DO	Salinity	ORP
Method: Peristaltic pump	0.5 gal	5.64	0.019	13.96	1432 AU	5.50	—	63
Monitor Reading (ppm): 0.0	2	5.78	0.011	13.49	643 AU	7.20	—	94
Well Casing Diameter & Material	3.5	5.82	0.010	13.75	238	8.21	—	92
Type: 1" stainless steel	5 gal	5.85	0.008	13.31	215	—	—	110
Total Well Depth (TD): 35								
Static Water Level (WL): —								
One Casing Volume(gal/L): —								
Start Purge (hrs): 1511								
End Purge (hrs): 1540								
Total Purge Time (min): 29								
Total Vol. Purged (gal/L): 5 gal								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
VOCs	HCl	2 - 40ml glass vials	yes

OBSERVATIONS / NOTES:

No stains, odors, or elevated PID readings

very few small bubbles in tubing

Temporary Well screen set from 31 ft to 35ft bgs
Pull tubing 1.5 ft off bottom
Purge Rate: 600 ml/min

Circle If Applicable:

MS/MSD	Duplicate ID No.:
—	—

Signature(s):

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: NWIRP Calverton
Project No.: 112G02750

[] Domestic Well Data
[] Monitoring Well Data
[X] Other Well Type: Temporary Well Groundwater Grab
[] QA Sample Type:

Sample ID No.: FT-GW 430-4145
Sample Location: FT-TW 430
Sampled By: J. Birkett
C.O.C. No.:
Type of Sample:
[x] Low Concentration
[] High Concentration

SAMPLING DATA:

Date: 10-17-11	Color	pH	S.C.	Temp.	Turbidity	DO	Salinity	ORP
Time: 1508	(Visual)	(S.U.)	(mS/cm)	(^{0}C)	(NTU)	(mg/l)	(%)	(mV)
Method: Peristaltic pump	tan tint	5.15	0.000	13.21	143	—	—	148

PURGE DATA:

Date: 10-17-11	Volume	pH	S.C.	Temp.	Turbidity	DO	Salinity	ORP
Method: Peristaltic pump	0.5 gal	5.99	0.005	15.60	83.3	7.80	—	62
Monitor Reading (ppm): 0.0	2	5.52	0.001	13.44	107	7.83	—	135
Well Casing Diameter & Material	3.5	5.14	0.000	13.47	115	7.96	—	150
Type: 1" stainless steel	5 gal	5.15	0.000	13.21	143	—	—	148
Total Well Depth (TD): 45								
Static Water Level (WL): —								
One Casing Volume(gal/L): —								
Start Purge (hrs): 1443								
End Purge (hrs): 1508								
Total Purge Time (min): 25								
Total Vol. Purged (gal/L): 5 gal								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
VOCs	HCl	2 - 40ml glass vials	yes

OBSERVATIONS / NOTES:

No stains, odors, or elevated PID readings

Very few small bubbles in tubing

Temporary Well screen set from 41 ft to 45 ft bgs
Pull tubing 1.5 ft off bottom
Purge Rate: 600mL/min

Circle if Applicable:

MS/MSD	Duplicate ID No.:
—	—

Signature(s):

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: NWIRP Calverton
Project No.: 112G02750

[] Domestic Well Data
[] Monitoring Well Data
[X] Other Well Type: Temporary Well Groundwater Grab
[] QA Sample Type:

Sample ID No.: FT-GW 430-5155
Sample Location: FT-TW 430
Sampled By: J. Birkett
C.O.C. No.:
Type of Sample:
[x] Low Concentration
[] High Concentration

SAMPLING DATA:

Date: 10-17-11	Color (Visual)	pH (S.U.)	S.C. (mS/cm)	Temp. (°C)	Turbidity (NTU)	DO (mg/l)	Salinity (%)	ORP (mV)
Time: 1326								
Method: Peristaltic pump	tan w/silt	5.50	0.008	13.33	3267 AU	—	—	85

PURGE DATA:

Date: 10-17-11	Volume	pH	S.C.	Temp.	Turbidity	DO	Salinity	ORP
Method: Peristaltic pump	0.5 gal	5.93	0.015	15.21	Over Range	8.38	—	42
Monitor Reading (ppm):	2	5.99	0.008	14.15	" "	9.44	—	53
Well Casing Diameter & Material	3.5	5.70	0.007	13.69	" "	8.14	—	74
Type: 1" stainless steel	5 gal	5.50	0.008	13.33	3267 AU	—	—	85
Total Well Depth (TD):								
Static Water Level (WL):								
One Casing Volume(gal/L):								
Start Purge (hrs): 1259								
End Purge (hrs): 1326								
Total Purge Time (min): 27								
Total Vol. Purged (gal/L): 5 gal								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
VOCs	HCl	2 - 40ml glass vials	yes

OBSERVATIONS / NOTES:

No stains, odors, and PID readings
Temporary Well screen set from 51 ft to 55 ft bgs
Pull tubing 1.5 ft off bottom
Purge Rate: 550mL/min

Redrive: sand filled rods

Circle if Applicable:

MS/MSD	Duplicate ID No.:
—	—

Signature(s):

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: NWIRP Calverton
Project No.: 112G02750

[] Domestic Well Data
[] Monitoring Well Data
[X] Other Well Type: Temporary Well Groundwater Grab
[] QA Sample Type:

Sample ID No.: FT-GW 430-6165
Sample Location: FT-TW 430
Sampled By: J. Birkett
C.O.C. No.:
Type of Sample:
[x] Low Concentration
[] High Concentration

SAMPLING DATA:

Date: 10-17-11 Time: 1212	Color (Visual)	pH (S.U.)	S.C. (mS/cm)	Temp. (°C)	Turbidity (NTU)	DO (mg/l)	Salinity (%)	ORP (mV)
Method: Peristaltic pump	tan w/silt	5.54	0.016	12.65	Over Range	—	—	53

PURGE DATA:

Date: 10-17-11	Volume	pH	S.C.	Temp.	Turbidity	DO	Salinity	ORP
Method: Peristaltic pump	0.5 gal	5.66	0.022	12.97	Over Range	5.33	—	26
Monitor Reading (ppm): 0.0	2	5.86	0.019	12.68	" "	6.95	—	17
Well Casing Diameter & Material	3.5	5.63	0.017	12.72	" "	6.61	—	41
Type: 1" stainless steel	4.5 gal	5.54	0.016	12.65	" "	—	—	53
Total Well Depth (TD): 65								
Static Water Level (WL): —								
One Casing Volume(gal/L): —								
Start Purge (hrs): 1147								
End Purge (hrs): 1212								
Total Purge Time (min): 25								
Total Vol. Purged (gal/L): 4.5 gal								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
VOCs	HCl	2 - 40ml glass vials	yes

OBSERVATIONS / NOTES:

No stains, odors, or elevated PID readings

Few air bubbles in tubing

Temporary Well screen set from 61 ft to 65 ft bgs
Pull tubing 1.5 ft off bottom
Purge Rate: 550 mL/min

Circle if Applicable:

MS/MSD	Duplicate ID No.:
—	—

Signature(s): [signature]

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: NWIRP Calverton
Project No.: 112G02750

[] Domestic Well Data
[] Monitoring Well Data
[X] Other Well Type: Temporary Well Groundwater Grab
[] QA Sample Type:

Sample ID No.: FT-GW 430-7175
Sample Location: FT-TW 430
Sampled By: J. Birkett
C.O.C. No.:
Type of Sample:
[x] Low Concentration
[] High Concentration

SAMPLING DATA:

Date: 10-17-11	Color	pH	S.C.	Temp.	Turbidity	DO	Salinity	ORP
Time: 1144	(Visual)	(S.U.)	(mS/cm)	(°C)	(NTU)	(mg/l)	(%)	(mV)
Method: Peristaltic pump	tan w/silt	5.80	0.052	13.14	Overrange	—	—	6

PURGE DATA:

Date: 10-17-11	Volume	pH	S.C.	Temp.	Turbidity	DO	Salinity	ORP
Method: Peristaltic pump	0.5 gal	5.38	0.185	15.87	Over Range	5.17	—	99
Monitor Reading (ppm): 0.0	2	5.61	0.068	14.32	2487NU	5.96	—	41
Well Casing Diameter & Material	3.5	5.68	0.053	13.48	3856NU	6.85	—	25
Type: 1" stainless steel	4.5 gal	5.80	0.052	13.14	OverRange	—	—	6
Total Well Depth (TD): 75								
Static Water Level (WL): —								
One Casing Volume(gal/L):								
Start Purge (hrs): 1109								
End Purge (hrs): 1144								
Total Purge Time (min): 35								
Total Vol. Purged (gal/L): 4.5gal								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
VOCs	HCl	2 - 40ml glass vials	yes

OBSERVATIONS / NOTES:

No stains, odors, or elevated PID readings
Temporary Well screen set from 71 ft to 75ft bgs
Pull tubing 1.5 ft off bottom
Purge Rate: 500ml/min

Problems initially getting purge
Few bubbles in tubing

Circle if Applicable:

MS/MSD	Duplicate ID No.:
—	—

Signature(s):

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: NWIRP Calverton
Project No.: 112G02750

[] Domestic Well Data
[] Monitoring Well Data
[X] Other Well Type: Temporary Well Groundwater Grab
[] QA Sample Type:

Sample ID No.: FT-GW 431-2125
Sample Location: FT-TW 431
Sampled By: J. Birkett
C.O.C. No.:
Type of Sample:
[x] Low Concentration
[] High Concentration

SAMPLING DATA:

	Color (Visual)	pH (S.U.)	S.C. (mS/cm)	Temp. (°C)	Turbidity (NTU)	DO (mg/l)	Salinity (%)	ORP (mV)
Date: 10-20-11 Time: 1248 Method: Peristaltic pump/Check valve	tan color	5.05	0.023	13.62	831 AU	—	—	192

PURGE DATA:

	Volume	pH	S.C.	Temp.	Turbidity	DO	Salinity	ORP
Date: 10-20-11								
Method: Peristaltic pump/Check valve	0.5 gal	5.23	0.037	13.68	Over Range	13.21	—	132
Monitor Reading (ppm): 0.0	2	5.05	0.023	13.62	831 AU	—	—	192
Well Casing Diameter & Material	3.5							
Type: 1" stainless steel	5 gal							
Total Well Depth (TD): 25								
Static Water Level (WL): —								
One Casing Volume(gal/L): —								
Start Purge (hrs): 1241								
End Purge (hrs): 1248								
Total Purge Time (min): 7								
Total Vol. Purged (gal/L): 2.5 gal								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
VOCs	HCl	2 - 40ml glass vials	yes

OBSERVATIONS / NOTES:

No stains, odors, or elevated PID readings

Temporary Well screen set from 21 ft to 25 ft bgs
Pull tubing 1.5 ft off bottom
Purge Rate: 650 ml/min

Could not pull water w/peristaltic
- Collect sample w/ check valve

Circle If Applicable:

MS/MSD	Duplicate ID No.:
—	—

Signature(s):

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: NWIRP Calverton
Project No.: 112C02750

[ ] Domestic Well Data
[ ] Monitoring Well Data
[X] Other Well Type: Temporary Well Groundwater Grab
[ ] SA Sample Type:

Sample ID No.: FT-GW 431-3135
Sample Location: FT-TW 431
Sampled By: J. Bissett
C.O.C. No.:
Type of Sample:
[X] Low Concentration
[ ] High Concentration

SAMPLING DATA:

Date: 10-20-11	Color	pH	S.C.	Temp.	Turbidity	DO	Salinity	ORP
Time: 1042	(Visual)	(S.U.)	(mS/cm)	(°C)	(NTU)	(mg/l)	(%)	(mV)
Method: Peristaltic pump	tan tint	5.39	0.028	12.83	750 AU	—	—	119

PURGE DATA:

Date: 10-20-11	Volume	pH	S.C.	Temp.	Turbidity	DO	Salinity	ORP
Method: Peristaltic pump	0.5 gal	5.43	0.032	13.38	Over Range	9.22	—	84
Monitor Reading (ppm): 0.0	2	5.39	0.028	12.83	750 AU	—	—	119
Well Casing Diameter & Material	3.5							
Type: 1" stainless steel	5 gal							
Total Well Depth (TD): 35								
Static Water Level (WL): —								
One Casing Volume(gal/L): —								
Start Purge (hrs): 1033								
End Purge (hrs): 1042								
Total Purge Time (min): 9								
Total Vol. Purged (gal/L): 2.5 gal								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
VOCs	HCl	6 x - 40ml glass vials	yes

OBSERVATIONS / NOTES:

No stains, odors, or elevated PID readings
Temporary Well screen set from 31 ft to 35 ft bgs
Pull tubing 1.5 ft off bottom
Purge Rate: 600 mL/min

Could not pull sample w/ peristaltic
- Use check valve to collect sample

Circle if Applicable:

MS/MSD	Duplicate ID No.:
yes	—

Signature(s):

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: NWIRP Calverton
Project No.: 112G02750

[] Domestic Well Data
[] Monitoring Well Data
[X] Other Well Type: Temporary Well Groundwater Grab
[] QA Sample Type:

Sample ID No.: FT-GW 431-4145
Sample Location: FT-TW 431
Sampled By: J. Birkett
C.O.C. No.:
Type of Sample:
[x] Low Concentration
[] High Concentration

SAMPLING DATA:

Date: 10-20-11	Color (Visual)	pH (S.U.)	S.C. (mS/cm)	Temp. (°C)	Turbidity (NTU)	DO (mg/l)	Salinity (%)	ORP (mV)
Time: 1236								
Method: Peristaltic pump/Check valve	tan color	5.43	0.002	12.40	1106 AU	—	—	150

PURGE DATA:

Date: 10-20-11	Volume	pH	S.C.	Temp.	Turbidity	DO	Salinity	ORP
Method: Peristaltic pump/Check valve	0.5 gal	5.68	0.007	12.99	Over Range	11.43	—	111
Monitor Reading (ppm): 0.0	2	5.43	0.002	12.40	1106 AU	—	—	150
Well Casing Diameter & Material	3.5							
Type: 1" stainless steel	5 gal							
Total Well Depth (TD): 45								
Static Water Level (WL): —								
One Casing Volume(gal/L): —								
Start Purge (hrs): 1230								
End Purge (hrs): 1236								
Total Purge Time (min): 6	2.5 gal							
Total Vol. Purged (gal/L):								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
VOCs	HCl	2 - 40ml glass vials	yes

OBSERVATIONS / NOTES:

No stains, odors, or elevated PID readings
Temporary Well screen set from 41 ft to 45 ft bgs
Pull tubing 1.5 ft off bottom
Purge Rate: —

Could not pull sample w/ peristaltic
- Collect sample w/ Check valve

Circle if Applicable:

MS/MSD —

Duplicate ID No.: —

Signature(s):

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: NWIRP Calverton
Project No.: 112G02750

[] Domestic Well Data
[] Monitoring Well Data
[X] Other Well Type: Temporary Well Groundwater Grab
[] QA Sample Type:

Sample ID No.: FT-GW 431-5155
Sample Location: FT-TW 431
Sampled By: J. Birkett
C.O.C. No.:
Type of Sample:
[x] Low Concentration
[] High Concentration

SAMPLING DATA:

	Color (Visual)	pH (S.U.)	S.C. (mS/cm)	Temp. (°C)	Turbidity (NTU)	DO (mg/l)	Salinity (%)	ORP (mV)
Date: 10-20-11								
Time: 1220								
Method: Peristaltic pump /Check valve	light brown	5.90	0.013	13.83	3055AU	—	—	79

PURGE DATA:

	Volume	pH	S.C.	Temp.	Turbidity	DO	Salinity	ORP
Date: 10-20-11								
Method: Peristaltic pump/Check valve	0.5 gal	5.91	0.022	14.74	Over Range	11.31	—	56
Monitor Reading (ppm): 0.0	2	5.90	0.013	13.83	3055AU	—	—	79
Well Casing Diameter & Material	3.5							
Type: 1" stainless steel	5 gal							
Total Well Depth (TD): 55								
Static Water Level (WL): —								
One Casing Volume(gal/L): —								
Start Purge (hrs): 1211								
End Purge (hrs): 1220								
Total Purge Time (min): 9								
Total Vol. Purged (gal/L): 2.5 gal								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
VOCs	HCl	2 - 40ml glass vials	YES

OBSERVATIONS / NOTES:

No stains, odors, or elevated PID reading
Temporary Well screen set from 51 ft to 55 ft bgs
Pull tubing 1.5 ft off bottom
Purge Rate: 600mL/min

Can't pull water w/ peristaltic
- Use check valve to collect sample

Circle if Applicable:

MS/MSD: —

Duplicate ID No.: FT-Dup03-20111020 (0900)

Signature(s):

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: NWIRP Calverton
Project No.: 112G02750

[] Domestic Well Data
[] Monitoring Well Data
[X] Other Well Type: Temporary Well Groundwater Grab
[] QA Sample Type:

Sample ID No.: FT-GW 431-6165
Sample Location: FT-TW 431
Sampled By: J. Birkett
C.O.C. No.:
Type of Sample:
[x] Low Concentration
[] High Concentration

SAMPLING DATA:

Date: 10-20-11	Color (Visual)	pH (S.U.)	S.C. (mS/cm)	Temp. (°C)	Turbidity (NTU)	DO (mg/l)	Salinity (%)	ORP (mV)
Time: 1025								
Method: Peristaltic pump /check valve	tan tint	5.71	0.019	13.13	657 AU	—	—	80

PURGE DATA:

Date: 10-20-11	Volume	pH	S.C.	Temp.	Turbidity	DO	Salinity	ORP
Method: Peristaltic pump /Check valve	0.5 gal	5.94	0.052	13.39	Over Range	7.96	—	45
Monitor Reading (ppm): 0.0	2	5.71	0.019	13.13	657 AU	—	—	80
Well Casing Diameter & Material	3.5							
Type: 1" stainless steel	5 gal							
Total Well Depth (TD): 65								
Static Water Level (WL): —								
One Casing Volume(gal/L): —								
Start Purge (hrs): 1018								
End Purge (hrs): 1025								
Total Purge Time (min): 7								
Total Vol. Purged (gal/L): 2.5 gal								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
VOCs	HCl	2 - 40ml glass vials	yes

OBSERVATIONS / NOTES:

No stains, odors, or elevated PID readings
Temporary Well screen set from 61 ft to 65 ft bgs
Pull tubing 1.5 ft off bottom
Purge Rate: 700 ml/min

Could not pull sample with peristaltic
-used check valve

Circle if Applicable:

MS/MSD	Duplicate ID No.:
—	—

Signature(s):

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: NWIRP Calverton
Project No.: 112G02750

[] Domestic Well Data
[] Monitoring Well Data
[X] Other Well Type: Temporary Well Groundwater Grab
[] QA Sample Type:

Sample ID No.: FT-GW 431-7175
Sample Location: FT-TW 431
Sampled By: J. Birkett
C.O.C. No.:
Type of Sample:
[x] Low Concentration
[] High Concentration

SAMPLING DATA:

Date: 10-20-11	Color (Visual)	pH (S.U.)	S.C. (mS/cm)	Temp. (°C)	Turbidity (NTU)	DO (mg/l)	Salinity (%)	ORP (mV)
Time: 1015								
Method: Peristaltic pump /checkvalve	brown silty	6.17	0.594	14.09	Over Range	—	—	28

PURGE DATA:

Date: 10-20-11	Volume	pH	S.C.	Temp.	Turbidity	DO	Salinity	ORP
Method: Peristaltic pump /checkvalve	0.5 gal	5.53	0.635	14.34	Over Range	1.33	—	37
Monitor Reading (ppm): 0.0	2	6.17	0.594	14.09	" "	—	—	28
Well Casing Diameter & Material	~~3.5~~						—	
Type: 1" stainless steel	~~5 gal~~							
Total Well Depth (TD): 75								
Static Water Level (WL): —								
One Casing Volume(gal/L): —								
Start Purge (hrs): 1004								
End Purge (hrs): 1015								
Total Purge Time (min): 11								
Total Vol. Purged (gal/L): 2 gal								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
VOCs	HCl	2 - 40ml glass vials	yes

OBSERVATIONS / NOTES:

No stains, odors, or elevated PID readings
Temporary Well screen set from 71 ft to 75 ft bgs
Pull tubing 1.5 ft off bottom
Purge Rate: 700ml/min

silty sand
Could not pull with peristaltic pump

Circle if Applicable:

MS/MSD	Duplicate ID No.:
—	—

Signature(s):

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: NWIRP Calverton
Project No.: 112G02750

[] Domestic Well Data
[] Monitoring Well Data
[X] Other Well Type: Temporary Well Groundwater Grab
[] QA Sample Type:

Sample ID No.: FT-GW 432-2630
Sample Location: FT-TW 432
Sampled By: J. Birkett
C.O.C. No.:
Type of Sample:
[x] Low Concentration
[] High Concentration

SAMPLING DATA:

Date: 10-21-11	Color	pH	S.C.	Temp.	Turbidity	DO	Salinity	ORP
Time: 1021	(Visual)	(S.U.)	(mS/cm)	(°C)	(NTU)	(mg/l)	(%)	(mV)
Method: ~~Peristaltic pump~~ Check valve	tan color	5.51	0.003	13.08	3401 AU	—	—	138

PURGE DATA:

Date: 10-21-11	Volume	pH	S.C.	Temp.	Turbidity	DO	Salinity	ORP
Method: ~~Peristaltic pump~~ Check valve	0.5 gal	5.50	0.027	14.64	Over Range	8.41	—	55
Monitor Reading (ppm): 0.0	2	5.51	0.003	13.08	3401 AU	—	—	138
Well Casing Diameter & Material	3.5							
Type: 1" stainless steel	5 gal							
Total Well Depth (TD): 30								
Static Water Level (WL): —								
One Casing Volume(gal/L):								
Start Purge (hrs): 1008								
End Purge (hrs): 1021								
Total Purge Time (min): 13								
Total Vol. Purged (gal/L): 3 gal								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
VOCs	HCl	2 - 40ml glass vials	yes

OBSERVATIONS / NOTES:

No stains, odors, or elevated PID readings
Temporary Well screen set from 26 ft to 30 ft bgs
Pull tubing 1.5 ft off bottom
Purge Rate: —

Could not pull water w/ peristaltic
- Use check valve to collect sample

Circle if Applicable:

MS/MSD —
Duplicate ID No.: —

Signature(s): [signature]

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: NWIRP Calverton
Project No.: 112G02750

[] Domestic Well Data
[] Monitoring Well Data
[X] Other Well Type: Temporary Well Groundwater Grab
[] QA Sample Type:

Sample ID No.: FT-GW 432-3135
Sample Location: FT-TW 432
Sampled By: J. Birkett
C.O.C. No.:
Type of Sample:
[x] Low Concentration
[] High Concentration

SAMPLING DATA:

Date: 10-20-11	Color	pH	S.C.	Temp.	Turbidity	DO	Salinity	ORP
Time: 1531	(Visual)	(S.U.)	(mS/cm)	(°C)	(NTU)	(mg/l)	(%)	(mV)
Method: ~~Peristaltic pump~~ Check valve	tan color	4.82	0.006	12.63	1063 AU	—	—	213

PURGE DATA:

Date: 10-20-11	Volume	pH	S.C.	Temp.	Turbidity	DO	Salinity	ORP
Method: ~~Peristaltic pump~~ Check valve	0.5 gal	5.25	0.007	12.75	2500 AU	11.81	—	161
Monitor Reading (ppm): 0.0	2	4.82	0.006	12.63	1063 AU	—	—	213
Well Casing Diameter & Material	3.5							
Type: 1" stainless steel	5 gal							
Total Well Depth (TD): 35								
Static Water Level (WL): —								
One Casing Volume(gal/L): —								
Start Purge (hrs): 1523								
End Purge (hrs): 1531								
Total Purge Time (min): 8								
Total Vol. Purged (gal/L): 3 gal								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
VOCs	HCl	2 - 40ml glass vials	yes

OBSERVATIONS / NOTES:

No stains, odors, or elevated PID reading Could not collect sample w/ peristaltic -used check valve

Temporary Well screen set from 31 ft to 35 ft bgs
Pull tubing 1.5 ft off bottom
Purge Rate: ——

Circle if Applicable:

MS/MSD	Duplicate ID No.:
—	—

Signature(s):

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: NWIRP Calverton
Project No.: 112G02750

[] Domestic Well Data
[] Monitoring Well Data
[X] Other Well Type: Temporary Well Groundwater Grab
[] QA Sample Type:

Sample ID No.: FT-GW 432-4145
Sample Location: FT-TW 432
Sampled By: J. Birkett
C.O.C. No.:
Type of Sample:
[x] Low Concentration
[] High Concentration

SAMPLING DATA:

Date: 10-21-11	Color (Visual)	pH (S.U.)	S.C. (mS/cm)	Temp. (°C)	Turbidity (NTU)	DO (mg/l)	Salinity (%)	ORP (mV)
Time: 0926								
Method: ~~Peristaltic pump~~ Check valve	tan color	5.30	0.007	11.90	1633 AU	—	—	137

PURGE DATA:

Date: 10-21-11	Volume	pH	S.C.	Temp.	Turbidity	DO	Salinity	ORP
Method: ~~Peristaltic pump~~ Check valve	0.5 gal	5.35	0.014	12.30	3806 AU	9.83	—	101
Monitor Reading (ppm): 0.0	2	5.30	0.007	11.90	1633 AU	—	—	137
Well Casing Diameter & Material	3.5							
Type: 1" stainless steel	5 gal							
Total Well Depth (TD): 45								
Static Water Level (WL): —								
One Casing Volume(gal/L): —								
Start Purge (hrs): 0918								
End Purge (hrs): 0926								
Total Purge Time (min): 8								
Total Vol. Purged (gal/L): 2.5								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
VOCs	HCl	2 - 40ml glass vials	yes

OBSERVATIONS / NOTES:

No stains, odors, or elevated PID readings

Temporary Well screen set from 41 ft to 45 ft bgs
Pull tubing 1.5 ft off bottom
Purge Rate: —

Could not pull samples w/ peristaltic
– Use check valve

Circle if Applicable:

MS/MSD	Duplicate ID No.:
—	—

Signature(s): [signature]

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: NWIRP Calverton
Project No.: 112G02750

[] Domestic Well Data
[] Monitoring Well Data
[X] Other Well Type: Temporary Well Groundwater Grab
[] QA Sample Type:

Sample ID No.: FT-GW 432-6165
Sample Location: FT-TW 432
Sampled By: J. Birkett
C.O.C. No.:
Type of Sample:
[x] Low Concentration
[] High Concentration

SAMPLING DATA:

Date: 10-20-11	Color (Visual)	pH (S.U.)	S.C. (mS/cm)	Temp. (°C)	Turbidity (NTU)	DO (mg/l)	Salinity (%)	ORP (mV)
Time: 1516								
Method: ~~Peristaltic pump~~ Check valve	tan color	5.40	0.016	12.87	1687 AU	—	—	72

PURGE DATA:

Date: 10-20-11	Volume	pH	S.C.	Temp.	Turbidity	DO	Salinity	ORP
Method: ~~Peristaltic pump~~ Check valve	0.5 gal	5.65	0.012	13.53	Over Range	11.83	—	89
Monitor Reading (ppm): 0.0	2	5.40	0.016	12.87	1687	—	—	72
Well Casing Diameter & Material	3.5							
Type: 1" stainless steel	5 gal							
Total Well Depth (TD): 65								
Static Water Level (WL): —								
One Casing Volume(gal/L): —								
Start Purge (hrs): 1508								
End Purge (hrs): 1516								
Total Purge Time (min): 8								
Total Vol. Purged (gal/L): 3 gal								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
VOCs	HCl	2 - 40ml glass vials	yes

OBSERVATIONS / NOTES:

No stains, odors, or elevated PID readings

Temporary Well screen set from 61 ft to 65 ft bgs
Pull tubing 1.5 ft off bottom
Purge Rate: —

Couldn't pull sample w/peristaltic
- collected sample w/ check valve

Circle if Applicable:

MS/MSD	Duplicate ID No.:
—	—

Signature(s): J. Birkett

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: NWIRP Calverton
Project No.: 112G02750

[] Domestic Well Data
[] Monitoring Well Data
[X] Other Well Type: Temporary Well Groundwater Grab
[] QA Sample Type:

Sample ID No.: FT-GW432-5155
Sample Location: FT-TW 432
Sampled By: J. Birkett
C.O.C. No.:
Type of Sample:
[x] Low Concentration
[] High Concentration

SAMPLING DATA:

Date: 10-21-11	Color	pH	S.C.	Temp.	Turbidity	DO	Salinity	ORP
Time: 0906	(Visual)	(S.U.)	(mS/cm)	(°C)	(NTU)	(mg/l)	(%)	(mV)
Method: ~~Peristaltic pump~~ Check valve	tan tint	5.30	0.025	12.78	2768	—	—	126

PURGE DATA:

Date: 10-21-11	Volume	pH	S.C.	Temp.	Turbidity	DO	Salinity	ORP
Method: ~~Peristaltic pump~~ Check valve	0.5 gal	4.99	0.108	13.12	3269	10.17	—	158
Monitor Reading (ppm): 0.0	2	5.30	0.025	12.78	2768	—	—	126
Well Casing Diameter & Material	3.5							
Type: 1" stainless steel	5 gal							
Total Well Depth (TD): 55								
Static Water Level (WL): —								
One Casing Volume(gal/L): —								
Start Purge (hrs): 0858								
End Purge (hrs): 0906								
Total Purge Time (min): 8								
Total Vol. Purged (gal/L): 3 gal								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
VOCs	HCl	2 - 40ml glass vials	

OBSERVATIONS / NOTES:

No stains, odors, or elevated PID readings

Temporary Well screen set from 51 ft to 55 ft bgs
Pull tubing 1.5 ft off bottom
Purge Rate: —

Driller smoking cigarette upwind
- Told him in future to not smoke during sampling

Could not collect sample w/peristaltic
- Collect sample with check valve

Circle if Applicable:

MS/MSD	Duplicate ID No.:
—	FT-Dup04-20111021 (0800)

Signature(s):

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: NWIRP Calverton
Project No.: 112G02750

[] Domestic Well Data
[] Monitoring Well Data
[X] Other Well Type: Temporary Well Groundwater Grab
[] QA Sample Type:

Sample ID No.: FT-GW 432-7175
Sample Location: FT-TW 432
Sampled By: J. Birkett
C.O.C. No.:
Type of Sample:
[x] Low Concentration
[] High Concentration

SAMPLING DATA:

	Color (Visual)	pH (S.U.)	S.C. (mS/cm)	Temp. (°C)	Turbidity (NTU)	DO (mg/l)	Salinity (%)	ORP (mV)
Date: 10-20-11								
Time: 1500								
Method: ~~Peristaltic pump~~ /Check valve	tan w/ sand	6.86	0.026	16.19	1914 AU	—	—	33

PURGE DATA:

	Volume	pH	S.C.	Temp.	Turbidity	DO	Salinity	ORP
Date: 10-20-11								
Method: ~~Peristaltic pump~~ /Check valve	0.5 gal	6.24	0.036	15.65	Over Range	7.36	—	32
Monitor Reading (ppm): 0.0	2	6.86	0.026	16.19	1914 AU	—	—	21
Well Casing Diameter & Material	3.5							
Type: 1" stainless steel	5 gal							
Total Well Depth (TD): 75								
Static Water Level (WL): —								
One Casing Volume(gal/L): —								
Start Purge (hrs): 1442								
End Purge (hrs): 1500								
Total Purge Time (min): 18								
Total Vol. Purged (gal/L): 2.5 gal								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
VOCs	HCl	2 - 40ml glass vials	yes

OBSERVATIONS / NOTES:

No odors, stains, or elevated PID readings
Temporary Well screen set from 71 ft to 75 ft bgs
Pull tubing 1.5 ft off bottom
Purge Rate: —
Sandy purge water

Could not collect sample w/ peristaltic
- Used check valve

Problems getting Flow
- sand clogging tubing

Circle if Applicable:

MS/MSD	Duplicate ID No.:
—	—

Signature(s): [signature]

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: NWIRP Calverton
Project No.: 112G02750

[] Domestic Well Data
[] Monitoring Well Data
[X] Other Well Type: Temporary Well Groundwater Grab
[] QA Sample Type:

Sample ID No.: FT-GW 433-2630
Sample Location: FT-TW 433
Sampled By: J. Birkett
C.O.C. No.:
Type of Sample:
[x] Low Concentration
[] High Concentration

SAMPLING DATA:

Date: 10-21-11	Color (Visual)	pH (S.U.)	S.C. (mS/cm)	Temp. (°C)	Turbidity (NTU)	DO (mg/l)	Salinity (%)	ORP (mV)
Time: 1111								
Method: ~~Peristaltic pump~~ Check valve						—	—	

PURGE DATA:

Date: 10-21-11	Volume	pH	S.C.	Temp.	Turbidity	DO	Salinity	ORP
Method: ~~Peristaltic pump~~ Check valve	0.5 gal	5.21	0.011	14.31	Over Range	6.76	~~0.~~ —	182
Monitor Reading (ppm): 0.0	2	4.59	0.010	13.87	971 AU	—	—	219
Well Casing Diameter & Material	3.5							
Type: 1" stainless steel	5 gal							
Total Well Depth (TD): 30								
Static Water Level (WL): —								
One Casing Volume(gal/L): —								
Start Purge (hrs): 1101								
End Purge (hrs): 1111								
Total Purge Time (min): 10								
Total Vol. Purged (gal/L): 2 gal								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
VOCs	HCl	2 - 40ml glass vials	yes

OBSERVATIONS / NOTES:

No stains, odors, or elevated PID readings

Use check value to pull water

Temporary Well screen set from 26 ft to 30 ft bgs
Pull tubing 1.5 ft off bottom
Purge Rate: —

Circle if Applicable:

MS/MSD	Duplicate ID No.:
—	—

Signature(s): J. Birkett

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: NWIRP Calverton
Project No.: 112G02750

[] Domestic Well Data
[] Monitoring Well Data
[X] Other Well Type: Temporary Well Groundwater Grab
[] QA Sample Type:

Sample ID No.: FT-GW433-3135
Sample Location: FT-TW 433
Sampled By: J. Birkett
C.O.C. No.:
Type of Sample:
[x] Low Concentration
[] High Concentration

SAMPLING DATA:

Date: 10-21-11	Color	pH	S.C.	Temp.	Turbidity	DO	Salinity	ORP
Time: 1140	(Visual)	(S.U.)	(mS/cm)	(°C)	(NTU)	(mg/l)	(%)	(mV)
Method: ~~Peristaltic pump~~ Check valve	Clear	4.86	0.014	12.99	156	—	—	197

PURGE DATA:

Date: 10-21-11	Volume	pH	S.C.	Temp.	Turbidity	DO	Salinity	ORP
Method: ~~Peristaltic pump~~ Check valve	0.5 gal	5.02	0.014	13.52	2840 NU	6.41	—	207
Monitor Reading (ppm): 0.0	2	4.86	0.014	12.99	156	—	—	197
Well Casing Diameter & Material	3.5							
Type: 1" stainless steel	5 gal							
Total Well Depth (TD): 35								
Static Water Level (WL): —								
One Casing Volume(gal/L): —								
Start Purge (hrs): 1130								
End Purge (hrs): 1140								
Total Purge Time (min): 10								
Total Vol. Purged (gal/L): 2 gal								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
VOCs	HCl	2 - 40ml glass vials	yes

OBSERVATIONS / NOTES:

No stains, odors, or elevated PID readings

Use check valve to pull water

Temporary Well screen set from 31 ft to 35 ft bgs
Pull tubing 1.5 ft off bottom
Purge Rate: —

Circle if Applicable:

MS/MSD	Duplicate ID No.:
—	—

Signature(s): J. Birkett

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: NWIRP Calverton
Project No.: 112G02750

[] Domestic Well Data
[] Monitoring Well Data
[X] Other Well Type: Temporary Well Groundwater Grab
[] QA Sample Type:

Sample ID No.: FT-GW433-4145
Sample Location: FT-TW433
Sampled By: Jacob birkett
C.O.C. No.:
Type of Sample:
[X] Low Concentration
[] High Concentration

SAMPLING DATA:

Date: 10-24-11	Color	pH	S.C.	Temp.	Turbidity	DO	Salinity	ORP
Time: 1115	(Visual)	(S.U.)	(mS/cm)	(°C)	(NTU)	(mg/l)	(%)	(mV)
Method: Peristaltic (Check Valve)	tan w/ silt	5.06	0.020	12.27	1037AU	—	—	204

PURGE DATA:

Date: 10-24-11	Volume	pH	S.C.	Temp.	Turbidity	DO	Salinity	ORP
Method: Peristaltic (Check Valve)	0.5 gal	4.93	0.092	12.38	OverRange	9.53	—	210
Monitor Reading (ppm): 0.0	2 gal	5.06	0.020	12.27	1037AU	—	—	204
Well Casing Diameter & Material								
Type: 1" Stainless Steel								
Total Well Depth (TD): 45								
Static Water Level (WL): —								
One Casing Volume(gal/L): —								
Start Purge (hrs): 1103								
End Purge (hrs): 1115								
Total Purge Time (min): 12								
Total Vol. Purged (gal/L): 3 gal								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
VOCs	HCl	2 40-mL glass vials	✓

OBSERVATIONS / NOTES:

No stains, odors, or elevated PID readings
Temporary Well screen set from 41 ft to 45 ft bgs
Pulled tubing 1.5 feet off bottom
Purge rate: —

Used check valve to collect sample

Circle if Applicable:

MS/MSD	Duplicate ID No.:
—	—

Signature(s):

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: NWIRP Calverton
Project No.: 112G02750

[] Domestic Well Data
[] Monitoring Well Data
[X] Other Well Type: Temporary Well Groundwater Grab
[] QA Sample Type:

Sample ID No.: FT-GW433-5155
Sample Location: FT-TW 433
Sampled By: Jacob birkett
C.O.C. No.:
Type of Sample:
[X] Low Concentration
[] High Concentration

SAMPLING DATA:

	Color (Visual)	pH (S.U.)	S.C. (mS/cm)	Temp. (°C)	Turbidity (NTU)	DO (mg/l)	Salinity (%)	ORP (mV)
Date: 10-24-11								
Time: 1255								
Method: Peristaltic / Check Valve	tan w/silt	5.84	0.007	14.26	1915AU	—	—	111

PURGE DATA:

	Volume	pH	S.C.	Temp.	Turbidity	DO	Salinity	ORP
Date: 10-24-11								
Method: Peristaltic / Check Valve	0.5 gal	5.94	0.017	15.72	2913AU	11.53	—	105
Monitor Reading (ppm): 0.0	2 gal	5.84	0.007	14.26	1915AU	—	—	111
Well Casing Diameter & Material								
Type: 1" Stainless Steel								
Total Well Depth (TD): 55								
Static Water Level (WL): —								
One Casing Volume(gal/L): —								
Start Purge (hrs): 1244								
End Purge (hrs): 1255								
Total Purge Time (min): 11								
Total Vol. Purged (gal/L): 3 gal								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
VOCs	HCl	2 40-mL glass vials	yes

OBSERVATIONS / NOTES:

No stains, odors, or elevated PID readings
Temporary Well screen set from 51 ft to 55 ft bgs
Pulled tubing 1.5 feet off bottom
Purge rate: —

Used check valve to collect sample

Circle if Applicable:

MS/MSD | Duplicate ID No.:

Signature(s):

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: NWIRP Calverton
Project No.: 112G02750

[] Domestic Well Data
[] Monitoring Well Data
[X] Other Well Type: Temporary Well Groundwater Grab
[] QA Sample Type:

Sample ID No.: FT-GW433-5963
Sample Location: FT-TW 433
Sampled By: Jacob birkett
C.O.C. No.:
Type of Sample:
[X] Low Concentration
[] High Concentration

SAMPLING DATA:

	Color (Visual)	pH (S.U.)	S.C. (mS/cm)	Temp. (°C)	Turbidity (NTU)	DO (mg/l)	Salinity (%)	ORP (mV)
Date: 10-24-11 Time: 1313 Method: Peristaltic / Check Valve	tan w/silt	5.60	0.015	13.51	3420 AU	—	—	68

PURGE DATA:

	Volume	pH	S.C.	Temp.	Turbidity	DO	Salinity	ORP
Date: 10-24-11 Method: Peristaltic / Check Valve	0.5 gal	5.71	0.021	13.47	3832 AU	6.31	—	29
Monitor Reading (ppm): 0.0	2 gal	5.60	0.015	13.51	3420 AU	—	—	68
Well Casing Diameter & Material								
Type: 1" Stainless Steel								
Total Well Depth (TD): 63								
Static Water Level (WL): —								
One Casing Volume(gal/L): —								
Start Purge (hrs): 1302								
End Purge (hrs): 1313								
Total Purge Time (min): 11								
Total Vol. Purged (gal/L): 2.5 gal								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
VOCs	HCl	2 40-mL glass vials	yes

OBSERVATIONS / NOTES:

No stains, odors, or elevated PID readings

Used check value to purge water

Temporary Well screen set from 59 ft to 63 ft bgs
Pulled tubing 1.5 feet off bottom
Purge rate: —

Note: Well not installed at proposed 61-65' interval. Drillers left chase rods in when pulling out causing them to fall below the top of the rods. Had to pull up an additional 2' to be able to pull chase rods out. Temp well screened from 59-63' bgs

Circle if Applicable:

MS/MSD	Duplicate ID No.:
—	—

Signature(s):

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: NWIRP Calverton
Project No.: 112G02750

[] Domestic Well Data
[] Monitoring Well Data
[X] Other Well Type: Temporary Well Groundwater Grab
[] QA Sample Type:

Sample ID No.: FT-GW 433-7175
Sample Location: FT-TW 433
Sampled By: Jacob birkett
C.O.C. No.:
Type of Sample:
[X] Low Concentration
[] High Concentration

SAMPLING DATA:

Date: 10-24-11	Color	pH	S.C.	Temp.	Turbidity	DO	Salinity	ORP
Time: 1132	(Visual)	(S.U.)	(mS/cm)	(°C)	(NTU)	(mg/l)	(%)	(mV)
Method: Peristaltic (Check Valve)	tan w/silt	5.79	0.012	11.99	998 AU	—	—	132

PURGE DATA:

Date: 10-24-11	Volume	pH	S.C.	Temp.	Turbidity	DO	Salinity	ORP
Method: Peristaltic (Check Valve)	0.5 gal	5.71	0.014	12.33	1436 AU	9.81	—	144
Monitor Reading (ppm): 0.0	2 gal	5.79	0.012	11.99	998 AU	—	—	132
Well Casing Diameter & Material								
Type: 1" Stainless Steel								
Total Well Depth (TD): 75								
Static Water Level (WL): —								
One Casing Volume(gal/L): —								
Start Purge (hrs): 1122								
End Purge (hrs): 1132								
Total Purge Time (min): 10								
Total Vol. Purged (gal/L): 3 gal								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
VOCs	HCl	2 40-mL glass vials	yes

OBSERVATIONS / NOTES:

No stains, odors, or elevated PID readings
Temporary Well screen set from 71 ft to 75ft bgs
Pulled tubing 1.5 feet off bottom
Purge rate: —

Used check valve to collect sample

Circle if Applicable:

MS/MSD	Duplicate ID No.:
—	—

Signature(s): [signature]

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: NWIRP Calverton
Project No.: 112G02750

[] Domestic Well Data
[] Monitoring Well Data
[X] Other Well Type: Temporary Well Groundwater Grab
[] QA Sample Type:

Sample ID No.: FT-GW 434-2630
Sample Location: FT-TW 434
Sampled By: Jacob birkett
C.O.C. No.:
Type of Sample:
[X] Low Concentration
[] High Concentration

SAMPLING DATA:

Date: 10-25-11	Color (Visual)	pH (S.U.)	S.C. (mS/cm)	Temp. (°C)	Turbidity (NTU)	DO (mg/l)	Salinity (%)	ORP (mV)
Time: 1238								
Method: Peristaltic (Check Valve)	tan w/silt	6.23	0.218	12.86	1601AU	—	—	30

PURGE DATA:

Date: 10-25-11	Volume	pH	S.C.	Temp.	Turbidity	DO	Salinity	ORP
Method: Peristaltic (Check Valve)	0.5 gal	5.89	0.138	13.29	Over Range	7.31	—	22
Monitor Reading (ppm): 0.0	2 gal	6.23	0.218	12.86	1601AU	—	—	30
Well Casing Diameter & Material								
Type: 1" Stainless Steel								
Total Well Depth (TD): 30								
Static Water Level (WL): —								
One Casing Volume(gal/L): —								
Start Purge (hrs): 1227								
End Purge (hrs): 1238								
Total Purge Time (min): 11								
Total Vol. Purged (gal/L): 2.5 gal								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
VOCs	HCl	2 40-mL glass vials	yes

OBSERVATIONS / NOTES:

No stains, odors, or elevated PID reading

Used check value to collect sample

Temporary Well screen set from 26 ft to 30 ft bgs
Pulled tubing 1.5 feet off bottom
Purge rate: —

Circle if Applicable:

MS/MSD: —

Duplicate ID No.: FT-Dup06-201110 (1230)

Signature(s): [signature]

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: NWIRP Calverton
Project No.: 112G02750

[] Domestic Well Data
[] Monitoring Well Data
[X] Other Well Type: Temporary Well Groundwater Grab
[] QA Sample Type:

Sample ID No.: FT-GW ~~313~~ 434-3135
Sample Location: FT-TW 434
Sampled By: Jacob birkett
C.O.C. No.:
Type of Sample:
[X] Low Concentration
[] High Concentration

SAMPLING DATA:

	Color (Visual)	pH (S.U.)	S.C. (mS/cm)	Temp. (°C)	Turbidity (NTU)	DO (mg/l)	Salinity (%)	ORP (mV)
Date: 10-25-11								
Time: 1258								
Method: Peristaltic (Check Valve)	tan w/silt	6.33	0.229	12.35	629 AU	—	—	50

PURGE DATA:

	Volume	pH	S.C.	Temp.	Turbidity	DO	Salinity	ORP
Date: 10-25-11								
Method: Peristaltic (Check Valve)	0.5 gal	6.35	0.230	12.70	994 AU	6.68	—	51
Monitor Reading (ppm): 0.0	2 gal	6.33	0.229	12.35	629 AU	—	—	50
Well Casing Diameter & Material								
Type: 1" Stainless Steel								
Total Well Depth (TD): 35								
Static Water Level (WL): —								
One Casing Volume(gal/L): —								
Start Purge (hrs): 1247								
End Purge (hrs): 1258								
Total Purge Time (min): 11								
Total Vol. Purged (gal/L): 2 gal								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
VOCs	HCl	2 40-mL glass vials	yes

OBSERVATIONS / NOTES:

No stains, odors, or elevated PID readings
Used check value to collect sample
Temporary Well screen set from 31 ft to 35 ft bgs
Pulled tubing 1.5 feet off bottom
Purge rate: —

Circle if Applicable:

MS/MSD	Duplicate ID No.:
—	—

Signature(s): [signature]

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: NWIRP Calverton
Project No.: 112G02750

[] Domestic Well Data
[] Monitoring Well Data
[X] Other Well Type: Temporary Well Groundwater Grab
[] QA Sample Type:

Sample ID No.: FT-GW 434-4145
Sample Location: FT-TW 434
Sampled By: Jacob birkett
C.O.C. No.:
Type of Sample:
[X] Low Concentration
[] High Concentration

SAMPLING DATA:

	Color (Visual)	pH (S.U.)	S.C. (mS/cm)	Temp. (°C)	Turbidity (NTU)	DO (mg/l)	Salinity (%)	ORP (mV)
Date: 10-25-11								
Time: 1430								
Method: Peristaltic (Check Valve)	tan w/ silt	6.29	0.038	12.24	1392 AU	—	—	9

PURGE DATA:

	Volume	pH	S.C.	Temp.	Turbidity	DO	Salinity	ORP
Date: 10-25-11								
Method: Peristaltic / (Check Valve)	0.5 gal	6.15	0.047	12.43	2957 AU	7.14	—	2
Monitor Reading (ppm): 0.0	2 gal	6.29	0.038	12.24	1392 AU	—	—	9
Well Casing Diameter & Material								
Type: 1" Stainless Steel								
Total Well Depth (TD): 45								
Static Water Level (WL): —								
One Casing Volume(gal/L): —								
Start Purge (hrs): 1419								
End Purge (hrs): 1430								
Total Purge Time (min): 11								
Total Vol. Purged (gal/L): 2 gal								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
VOCs	HCl	2 40-mL glass vials	Yes

OBSERVATIONS / NOTES:

No stains, odors, or elevated PID readings

Used Check valve to collect sample

Temporary Well screen set from 41 ft to 45 ft bgs
Pulled tubing 1.5 feet off bottom
Purge rate: —

Circle if Applicable:

MS/MSD	Duplicate ID No.:
—	—

Signature(s): [signature]

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: NWIRP Calverton
Project No.: 112G02750

[] Domestic Well Data
[] Monitoring Well Data
[X] Other Well Type: Temporary Well Groundwater Grab
[] QA Sample Type:

Sample ID No.: FT-GW 434-5155
Sample Location: FT-TW 434
Sampled By: J. Birkett
C.O.C. No.:
Type of Sample:
[x] Low Concentration
[] High Concentration

SAMPLING DATA:

Date: 10-25-11	Color (Visual)	pH (S.U.)	S.C. (mS/cm)	Temp. (°C)	Turbidity (NTU)	DO (mg/l)	Salinity (%)	ORP (mV)
Time: 1415								
Method: ~~Peristaltic pump~~ Check Valve	tan w/silt	6.17	0.008	12.76	1687AU	—	—	-49

PURGE DATA:

Date: 10-25-11	Volume	pH	S.C.	Temp.	Turbidity	DO	Salinity	ORP
Method: ~~Peristaltic pump~~ Check Valve	0.5 gal	6.80	0.019	13.69	1403AU	9.31	—	-39
Monitor Reading (ppm): 0.0	2	6.17	0.008	12.76	1687AU	—	—	-49
Well Casing Diameter & Material	3.5							
Type: 1" stainless steel	5 gal							
Total Well Depth (TD): 55								
Static Water Level (WL): —								
One Casing Volume(gal/L): —								
Start Purge (hrs): 1404								
End Purge (hrs): 1415								
Total Purge Time (min): 11								
Total Vol. Purged (gal/L): 2.5 gal								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
VOCs	HCl	2 - 40ml glass vials	yes

OBSERVATIONS / NOTES:

No stains, odors, or elevated PID readings
Used check valve to collect sample
Temporary Well screen set from 51 ft to 55 ft bgs
Pull tubing 1.5 ft off bottom
Purge Rate: —

Circle if Applicable:

MS/MSD	Duplicate ID No.:
—	—

Signature(s): [signature]

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: NWIRP Calverton
Project No.: 112G02750

[] Domestic Well Data
[] Monitoring Well Data
[X] Other Well Type: Temporary Well Groundwater Grab
[] QA Sample Type:

Sample ID No.: FT-GW 434-6165
Sample Location: FT-TW 434
Sampled By: J. Birkett
C.O.C. No.:
Type of Sample:
[x] Low Concentration
[] High Concentration

SAMPLING DATA:

Date: 10-25-11	Color	pH	S.C.	Temp.	Turbidity	DO	Salinity	ORP
Time: 1449	(Visual)	(S.U.)	(mS/cm)	(^{0}C)	(NTU)	(mg/l)	(%)	(mV)
Method: ~~Peristaltic pump~~ Check Valve	tan w/silt	6.28	0.013	11.84	3113 AU	—	—	75

PURGE DATA:

Date: 10-25-11	Volume	pH	S.C.	Temp.	Turbidity	DO	Salinity	ORP
Method: ~~Peristaltic pump~~ Check Valve	0.5 gal	6.20	0.028	11.99	Over Range	1.59	—	-33
Monitor Reading (ppm): 0.0	2	6.28	0.013	11.84	3113 AU	—	—	75
Well Casing Diameter & Material	3.5							
Type: 1" stainless steel	5 gal							
Total Well Depth (TD): 65								
Static Water Level (WL): —								
One Casing Volume(gal/L): —								
Start Purge (hrs): 1438								
End Purge (hrs): 1449								
Total Purge Time (min): 11								
Total Vol. Purged (gal/L): 2 gal								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
VOCs	HCl	2 - 40ml glass vials	yes

OBSERVATIONS / NOTES:

No stains, odors, or elevated PID readings
Temporary Well screen set from 61 ft to 65 ft bgs
Pull tubing 1.5 ft off bottom
Purge Rate: —

Used check valve to collect sample

Circle if Applicable:

MS/MSD	Duplicate ID No.:
—	—

Signature(s): J. Birkett

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: NWIRP Calverton
Project No.: 112G02750

[] Domestic Well Data
[] Monitoring Well Data
[X] Other Well Type: Temporary Well Groundwater Grab
[] QA Sample Type:

Sample ID No.: FT-GW 434-7175
Sample Location: FT-TW 434
Sampled By: J. Birkett
C.O.C. No.:
Type of Sample:
[x] Low Concentration
[] High Concentration

SAMPLING DATA:

Date: 10-25-11	Color (Visual)	pH (S.U.)	S.C. (mS/cm)	Temp. (°C)	Turbidity (NTU)	DO (mg/l)	Salinity (%)	ORP (mV)
Time: 1213								
Method: ~~Peristaltic pump~~ Check Valve	tan w/silt	6.09	0.014	12.78	1674 AU	—	—	69

PURGE DATA:

Date: 10-25-11	Volume	pH	S.C.	Temp.	Turbidity	DO	Salinity	ORP
Method: ~~Peristaltic pump~~ Check Valve	0.5 gal	6.05	0.025	13.62	3746 AU	5.59	—	50
Monitor Reading (ppm): 0.0	2	6.09	0.014	12.78	1674 AU	—	—	69
Well Casing Diameter & Material	3.5							
Type: 1" stainless steel	5 gal							
Total Well Depth (TD): 75								
Static Water Level (WL): —								
One Casing Volume(gal/L): —								
Start Purge (hrs): 1202								
End Purge (hrs): 1213								
Total Purge Time (min): 11								
Total Vol. Purged (gal/L): 2.5 gal								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
VOCs	HCl	2 - 40ml glass vials	yes

OBSERVATIONS / NOTES:

No stains, odors, or elevated PID readings
Used Check valve to collect sample
Temporary Well screen set from 71 ft to 75 ft bgs
Pull tubing 1.5 ft off bottom
Purge Rate: —

Circle if Applicable:

MS/MSD	Duplicate ID No.:
—	—

Signature(s): J. Birkett

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: NWIRP Calverton
Project No.: 112G02750

[] Domestic Well Data
[] Monitoring Well Data
[X] Other Well Type: Temporary Well Groundwater Grab
[] QA Sample Type:

Sample ID No.: FT-GW435-2125
Sample Location: FT-TW435
Sampled By: Jacob birkett
C.O.C. No.:
Type of Sample:
[X] Low Concentration
[] High Concentration

SAMPLING DATA:

	Color (Visual)	pH (S.U.)	S.C. (mS/cm)	Temp. (°C)	Turbidity (NTU)	DO (mg/l)	Salinity (%)	ORP (mV)
Date: 10-24-11								
Time: 1505								
Method: Peristaltic (Check Valve)	tan w/silt	5.26	0.131	14.28	OverRange	12.14	—	143

PURGE DATA:

	Volume	pH	S.C.	Temp.	Turbidity	DO	Salinity	ORP
Date: 10-24-11								
Method: Peristaltic (Check Valve)	0.5 gal	5.26	0.131	14.28	OverRange	12.14	—	143
Monitor Reading (ppm): 0.0								
Well Casing Diameter & Material								
Type: 1" Stainless Steel								
Total Well Depth (TD): 25								
Static Water Level (WL): —								
One Casing Volume(gal/L): —								
Start Purge (hrs): 1457								
End Purge (hrs): 1505								
Total Purge Time (min): 8								
Total Vol. Purged (gal/L): ~~2.5~~ 1 gal								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
VOCs	HCl	2 40-mL glass vials	yes

OBSERVATIONS / NOTES:

No stains, odors, or elevated PID readings
Temporary Well screen set from 21 ft to 25 ft bgs
Pulled tubing 1.5 feet off bottom
Purge rate: —
Only ~1.5' of water in well (seen on chase rods)

Collect sample with check valve

Circle if Applicable:

MS/MSD —

Duplicate ID No.: —

Signature(s):

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: NWIRP Calverton
Project No.: 112G02750

[] Domestic Well Data
[] Monitoring Well Data
[X] Other Well Type: Temporary Well Groundwater Grab
[] QA Sample Type:

Sample ID No.: FT-GW 435-3135
Sample Location: FT-TW 435
Sampled By: Jacob birkett
C.O.C. No.:
Type of Sample:
[X] Low Concentration
[] High Concentration

SAMPLING DATA:

Date: 10-24-11	Color (Visual)	pH (S.U.)	S.C. (mS/cm)	Temp. (°C)	Turbidity (NTU)	DO (mg/l)	Salinity (%)	ORP (mV)
Time: 1520								
Method: Peristaltic / Check Valve	clear w/ tint	5.83	0.241	13.03	117	8.63	—	41

PURGE DATA:

Date: 10-24-11	Volume	pH	S.C.	Temp.	Turbidity	DO	Salinity	ORP
Method: Peristaltic / Check Valve	0.5 gal	5.69	0.213	13.21	1514 NTU	4.13	—	29
Monitor Reading (ppm): 0.0	2 gal	5.83	0.241	13.03	117 NTU	8.63	—	41
Well Casing Diameter & Material								
Type: 1" Stainless Steel								
Total Well Depth (TD): 35								
Static Water Level (WL): —								
One Casing Volume(gal/L): —								
Start Purge (hrs): 1509								
End Purge (hrs): 1520								
Total Purge Time (min): 11								
Total Vol. Purged (gal/L): 2 gal								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
VOCs	HCl	2 40-mL glass vials	Yes

OBSERVATIONS / NOTES:

No stains, odors, or elevated PID readings
Temporary Well screen set from 31 ft to 35ft bgs
Pulled tubing 1.5 feet off bottom
Purge rate: —

Collect sample with check valve

Circle if Applicable:

MS/MSD	Duplicate ID No.:
—	—

Signature(s): Jacob Birkett

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: NWIRP Calverton
Project No.: 112G02750

[] Domestic Well Data
[] Monitoring Well Data
[X] Other Well Type: Temporary Well Groundwater Grab
[] QA Sample Type:

Sample ID No.: FT-GW435-4145
Sample Location: FT-TW435
Sampled By: Jacob birkett
C.O.C. No.:
Type of Sample:
[X] Low Concentration
[] High Concentration

SAMPLING DATA:

	Color (Visual)	pH (S.U.)	S.C. (mS/cm)	Temp. (°C)	Turbidity (NTU)	DO (mg/l)	Salinity (%)	ORP (mV)
Date: 10-25-11								
Time: 1013								
Method: Peristaltic / Check Valve	tan w/F. sand	5.98	0.006	11.65	1159 AU	—	—	90

PURGE DATA:

	Volume	pH	S.C.	Temp.	Turbidity	DO	Salinity	ORP
Date: 10-25-11								
Method: Peristaltic / Check Valve	0.5 gal	5.94	0.012	11.77	Overrange	9.03	—	58
Monitor Reading (ppm): 0.0	2 gal	5.98	0.006	11.65	1159 AU	—	—	90
Well Casing Diameter & Material								
Type: 1" Stainless Steel								
Total Well Depth (TD): 45								
Static Water Level (WL): —								
One Casing Volume(gal/L): —								
Start Purge (hrs): 1002								
End Purge (hrs): 1013								
Total Purge Time (min): 11								
Total Vol. Purged (gal/L): 2.5 gal								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
VOCs	HCl	2 40-mL glass vials	yes

OBSERVATIONS / NOTES:

No stains, odors, or elevated PID readings

Used check value to collect sample

Temporary Well screen set from 41 ft to 45 ft bgs
Pulled tubing 1.5 feet off bottom
Purge rate: —

F. sand in sample

Circle if Applicable:

MS/MSD	Duplicate ID No.:
—	—

Signature(s):

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: NWIRP Calverton
Project No.: 112G02750

[] Domestic Well Data
[] Monitoring Well Data
[X] Other Well Type: Temporary Well Groundwater Grab
[] QA Sample Type:

Sample ID No.: FT-GW435-5155
Sample Location: FT-TW 435
Sampled By: Jacob birkett
C.O.C. No.:
Type of Sample:
[X] Low Concentration
[] High Concentration

SAMPLING DATA:

	Color (Visual)	pH (S.U.)	S.C. (mS/cm)	Temp. (°C)	Turbidity (NTU)	DO (mg/l)	Salinity (%)	ORP (mV)
Date: 10-25-11								
Time: 0949								
Method: Peristaltic / Check Valve	tanw/silt	5.93	0.014	11.54	3800AU	—	—	42

PURGE DATA:

	Volume	pH	S.C.	Temp.	Turbidity	DO	Salinity	ORP
Date: 10-25-11								
Method: Peristaltic / Check Valve	0.5 gal	5.76	0.016	11.76	OverRange	8.86	—	50
Monitor Reading (ppm): 0.0	2 gal	5.93	0.014	11.54	3800AU	—	—	42
Well Casing Diameter & Material								
Type: 1" Stainless Steel								
Total Well Depth (TD): 55								
Static Water Level (WL): —								
One Casing Volume(gal/L): —								
Start Purge (hrs): 0938								
End Purge (hrs): 0949								
Total Purge Time (min): 11								
Total Vol. Purged (gal/L): 2.5 gal								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
VOCs	HCl	6 x 40-mL glass vials	yes

OBSERVATIONS / NOTES:

No stains, odors, or elevated PID readings
Used check value to collect sample
Temporary Well screen set from 51 ft to 55 ft bgs
Pulled tubing 1.5 feet off bottom
Purge rate: —

Circle if Applicable:

MS/MSD	Duplicate ID No.:
yes	—

Signature(s):

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: NWIRP Calverton
Project No.: 112G02750

[] Domestic Well Data
[] Monitoring Well Data
[X] Other Well Type: Temporary Well Groundwater Grab
[] QA Sample Type:

Sample ID No.: FT-GW 435-6165
Sample Location: FT-TW 435
Sampled By: Jacob birkett
C.O.C. No.:
Type of Sample:
[X] Low Concentration
[] High Concentration

SAMPLING DATA:

	Color (Visual)	pH (S.U.)	S.C. (mS/cm)	Temp. (°C)	Turbidity (NTU)	DO (mg/l)	Salinity (%)	ORP (mV)
Date: 10-25-11								
Time: 0929								
Method: Peristaltic (Check Valve)	tan w/silt	5.57	0.026	11.77	Over Range	—	—	54

PURGE DATA:

	Volume	pH	S.C.	Temp.	Turbidity	DO	Salinity	ORP
Date: 10-25-11								
Method: Peristaltic (Check Valve)	0.5 gal	5.24	0.104	11.83	Over Range	4.63	—	65
Monitor Reading (ppm): <0.0	2 gal	5.57	0.026	11.77	Over Range	—	—	54
Well Casing Diameter & Material								
Type: 1" Stainless Steel								
Total Well Depth (TD): 65								
Static Water Level (WL): —								
One Casing Volume(gal/L): —								
Start Purge (hrs): 0918								
End Purge (hrs): 0929								
Total Purge Time (min): 11								
Total Vol. Purged (gal/L): 2.5 gal								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
VOCs	HCl	2 40-mL glass vials	yes

OBSERVATIONS / NOTES:

No stains, odors, or elevated PID readings
Used check valve to collect sample
Temporary Well screen set from 61 ft to 65 ft bgs
Pulled tubing 1.5 feet off bottom
Purge rate: —

Circle if Applicable:

MS/MSD: —
Duplicate ID No.: FT-Dup05-20111025 (0830)

Signature(s):

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: NWIRP Calverton
Project No.: 112G02750

[] Domestic Well Data
[] Monitoring Well Data
[X] Other Well Type: Temporary Well Groundwater Grab
[] QA Sample Type:

Sample ID No.: FT-GW435-7175
Sample Location: FT-TW 435
Sampled By: Jacob birkett
C.O.C. No.:
Type of Sample:
[X] Low Concentration
[] High Concentration

SAMPLING DATA:

	Color (Visual)	pH (S.U.)	S.C. (mS/cm)	Temp. (°C)	Turbidity (NTU)	DO (mg/l)	Salinity (%)	ORP (mV)
Date: 10-24-11								
Time: 1450								
Method: Peristaltic / Check Valve	tanw/silt	5.99	0.012	13.59	3720 AU	12.01	—	126

PURGE DATA:

	Volume	pH	S.C.	Temp.	Turbidity	DO	Salinity	ORP
Date: 10-24-11								
Method: Peristaltic / Check Valve	0.5	6.20	0.017	14.95	1226 AU	9.83	—	140
Monitor Reading (ppm): 0.0	2 gal	5.99	0.012	13.59	3720 AU	12.01	—	126
Well Casing Diameter & Material								
Type: 1" Stainless Steel								
Total Well Depth (TD): 75								
Static Water Level (WL): —								
One Casing Volume(gal/L): —								
Start Purge (hrs): 1439								
End Purge (hrs): 1450								
Total Purge Time (min): 11								
Total Vol. Purged (gal/L): 2.5 gal								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
VOCs	HCl	2 40-mL glass vials	Yes

OBSERVATIONS / NOTES:

No stains, odors, or elevated PID readings
Temporary Well screen set from 71 ft to 75 ft bgs
Pulled tubing 1.5 feet off bottom
Purge rate: —

Collect sample with check value

Circle if Applicable:

MS/MSD	Duplicate ID No.:
—	—

Signature(s):

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: NWIRP Calverton
Project No.: ~~112G02045~~ 112G02750

[] Domestic Well Data
[X] ~~Monitoring~~ TEMP. Well Data
[] Other Well Type:
[] QA Sample Type:

Sample ID No.: FT-GW436-2630
Sample Location: FT-TW436
Sampled By: J. Birkett
C.O.C. No.:
Type of Sample:
[X] Low Concentration
[] High Concentration

SAMPLING DATA:

Date: 10-26-11	Color	pH	S.C.	Temp.	Turbidity	DO	Salinity	ORP
Time: 1115	(Visual)	(S.U.)	(mS/cm)	(°C)	(NTU)	(mg/l)	(%)	(mV)
Method: ~~Low Flow~~ Check Valve	tan w/silt	5.14	0.008	12.44	1932 AU	—	—	173

PURGE DATA:

Date: 10-26-11	Volume	pH	S.C.	Temp.	Turbidity	DO	Salinity	Other ORP
Method: ~~Low Flow~~ Check Valve	0.5	5.13	0.013	12.10	Over Range	10.08	—	155
Monitor Reading (ppm): -0.0	2 gal	5.14	0.008	12.44	1932 AU	—	—	173
Well Casing Diameter & Material								
Type: 1" Stainless Steel								
Total Well Depth (TD): 30			~~SEE LOW FLOW PURGE SHEET FOR DETAILS~~					
Static Water Level (WL): —								
One Casing Volume(gal/L): —								
Start Purge (hrs): 1105								
End Purge (hrs): 1115								
Total Purge Time (min): 10								
Total Vol. Purged (gal/L): 2 gal								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
VOCs	HCl	2 - 40mL glass vials	yes

OBSERVATIONS / NOTES:

~~D.O. Test Kit~~ —
No stains, odors, or elevated PID readings
Temp Well screen set from 26-30' bgs

Used check valve to collect sample

Circle if Applicable:

MS/MSD	Duplicate ID No.:
—	—

Signature(s):

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: NWIRP Calverton
Project No.: 112G02750

[] Domestic Well Data
[] Monitoring Well Data
[X] Other Well Type: Temporary Well Groundwater Grab
[] QA Sample Type:

Sample ID No.: FT-GW 436-3135
Sample Location: FT-TW 436
Sampled By: Jacob birkett
C.O.C. No.:
Type of Sample:
[X] Low Concentration
[] High Concentration

SAMPLING DATA:

Date: 10-26-11	Color (Visual)	pH (S.U.)	S.C. (mS/cm)	Temp. (°C)	Turbidity (NTU)	DO (mg/l)	Salinity (%)	ORP (mV)
Time: 0935								
Method: Peristaltic / Check Valve	tan w/silt	6.06	0.089	11.16	822 AU	—	—	55

PURGE DATA:

Date: 10-26-11	Volume	pH	S.C.	Temp.	Turbidity	DO	Salinity	ORP
Method: Peristaltic / Check Valve	0.5	6.03	0.092	11.23	1458 AU	8.18	—	42
Monitor Reading (ppm): 0.0	2 gal	6.06	0.089	11.16	822 AU	—	—	55
Well Casing Diameter & Material								
Type: 1" Stainless Steel								
Total Well Depth (TD): 35								
Static Water Level (WL): —								
One Casing Volume(gal/L): —								
Start Purge (hrs): 0925								
End Purge (hrs): 0935								
Total Purge Time (min): 10								
Total Vol. Purged (gal/L): 2 gal								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
VOCs	HCl	2 40-mL glass vials	yes

OBSERVATIONS / NOTES:

No stains, odors, or elevated PID readings
Temporary Well screen set from 31 ft to 35 ft bgs
Pulled tubing 1.5 feet off bottom
Purge rate: —

Used check value to collect sample

Circle if Applicable:

MS/MSD	Duplicate ID No.:
—	—

Signature(s): [signature]

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: NWIRP Calverton
Project No.: 112G02750

[] Domestic Well Data
[] Monitoring Well Data
[X] Other Well Type: Temporary Well Groundwater Grab
[] QA Sample Type:

Sample ID No.: FT-GW 436-4145
Sample Location: FT-TW 436
Sampled By: Jacob birkett
C.O.C. No.:
Type of Sample:
[X] Low Concentration
[] High Concentration

SAMPLING DATA:

Date: 10-26-11	Color	pH	S.C.	Temp.	Turbidity	DO	Salinity	ORP
Time: 1059	(Visual)	(S.U.)	(mS/cm)	(°C)	(NTU)	(mg/l)	(%)	(mV)
Method: Peristaltic / Check Valve	tan w/silt	5.04	0.002	11.31	807 AU	—	—	205

PURGE DATA:

Date: 10-26-11	Volume	pH	S.C.	Temp.	Turbidity	DO	Salinity	ORP
Method: Peristaltic / Check Valve	0.5	5.56	0.003	11.27	2043 AU	10.85	—	158
Monitor Reading (ppm): 0.0	2 gal	5.04	0.002	11.31	807 AU	—	—	205
Well Casing Diameter & Material								
Type: 1" Stainless Steel								
Total Well Depth (TD): 45								
Static Water Level (WL): —								
One Casing Volume(gal/L): —								
Start Purge (hrs): 1049								
End Purge (hrs): 1059								
Total Purge Time (min): 10								
Total Vol. Purged (gal/L): 2 gal								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
VOCs	HCl	2 40-mL glass vials	yes

OBSERVATIONS / NOTES:

No stains, odors, or elevated PID readings
Temporary Well screen set from 41 ft to 45 ft bgs
Pulled tubing 1.5 feet off bottom
Purge rate: —

Used check valve to collect sample

Circle If Applicable:

MS/MSD	Duplicate ID No.:
—	—

Signature(s): [signature]

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: NWIRP Calverton
Project No.: 112G02750

[] Domestic Well Data
[] Monitoring Well Data
[X] Other Well Type: Temporary Well Groundwater Grab
[] QA Sample Type:

Sample ID No.: FT-GW 436-5155
Sample Location: FT-TW 436
Sampled By: Jacob birkett
C.O.C. No.:
Type of Sample:
[X] Low Concentration
[] High Concentration

SAMPLING DATA:

Date: 10-26-11	Color	pH	S.C.	Temp.	Turbidity	DO	Salinity	ORP
Time: 0921	(Visual)	(S.U.)	(mS/cm)	(°C)	(NTU)	(mg/l)	(%)	(mV)
Method: Peristaltic / Check Valve	tan w/silt	5.70	0.006	11.40	929 AV	—	—	89

PURGE DATA:

Date: 10-26-11	Volume	pH	S.C.	Temp.	Turbidity	DO	Salinity	ORP
Method: Peristaltic / Check Valve	0.5	5.80	0.008	11.46	1843 AV	9.83	—	71
Monitor Reading (ppm): 0.0	2 gal	5.70	0.006	11.40	929 AV	—	—	89
Well Casing Diameter & Material								
Type: 1" Stainless Steel								
Total Well Depth (TD): 55								
Static Water Level (WL): —								
One Casing Volume(gal/L): —								
Start Purge (hrs): 0910								
End Purge (hrs): 0921								
Total Purge Time (min): 11								
Total Vol. Purged (gal/L): 2 gal								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
VOCs	HCl	2 40-mL glass vials	yes

OBSERVATIONS / NOTES:

No stains, odors, or elevated PID readings
Temporary Well screen set from 51 ft to 55 ft bgs
Pulled tubing 1.5 feet off bottom
Purge rate: —

Used check value to collect sample

Circle If Applicable:

MS/MSD	Duplicate ID No.:
—	—

Signature(s): Jacob Birkett

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: NWIRP Calverton
Project No.: 112G02750

[] Domestic Well Data
[] Monitoring Well Data
[X] Other Well Type: Temporary Well Groundwater Grab
[] QA Sample Type:

Sample ID No.: FT-GW 436-6165
Sample Location: FT-TW 436
Sampled By: Jacob birkett
C.O.C. No.:
Type of Sample:
[X] Low Concentration
[] High Concentration

SAMPLING DATA:

Date: 10-26-11	Color (Visual)	pH (S.U.)	S.C. (mS/cm)	Temp. (°C)	Turbidity (NTU)	DO (mg/l)	Salinity (%)	ORP (mV)
Time: 1042								
Method: Peristaltic / Check Valve								

PURGE DATA:

Date: 10-26-11	Volume	pH	S.C.	Temp.	Turbidity	DO	Salinity	ORP
Method: Peristaltic / Check Valve	0.5	6.07	0.011	11.22	113 NTU	8.86	—	35
Monitor Reading (ppm): 0.0	2 gal	5.33	0.006	11.31	67	—	—	97
Well Casing Diameter & Material								
Type: 1" Stainless Steel								
Total Well Depth (TD): 65								
Static Water Level (WL): —								
One Casing Volume(gal/L): —								
Start Purge (hrs): 1032								
End Purge (hrs): 1042								
Total Purge Time (min): 10								
Total Vol. Purged (gal/L): 2 gal								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
VOCs	HCl	2 40-mL glass vials	yes

OBSERVATIONS / NOTES:

No stains, odors, or elevated PID readings
Temporary Well screen set from 61 ft to 65 ft bgs
Pulled tubing 1.5 feet off bottom
Purge rate: —

Used check value to collect sample

Circle if Applicable:

MS/MSD	Duplicate ID No.:
—	—

Signature(s): Jacob Birkett

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: NWIRP Calverton
Project No.: 112G02750

[] Domestic Well Data
[] Monitoring Well Data
[X] Other Well Type: Temporary Well Groundwater Grab
[] QA Sample Type:

Sample ID No.: FT-GW 436-7175
Sample Location: FT-TW 436
Sampled By: Jacob birkett
C.O.C. No.:
Type of Sample:
[X] Low Concentration
[] High Concentration

SAMPLING DATA:

Date: 10-26-11	Color (Visual)	pH (S.U.)	S.C. (mS/cm)	Temp. (°C)	Turbidity (NTU)	DO (mg/l)	Salinity (%)	ORP (mV)
Time: 0905								
Method: Peristaltic / Check Valve	tan w/silt	5.90	0.025	11.38	2912	—	—	32

PURGE DATA:

Date: 10-26-11	Volume	pH	S.C.	Temp.	Turbidity	DO	Salinity	ORP
Method: Peristaltic / Check Valve	0.5	5.66	0.068	11.38	2021	4.85	—	19
Monitor Reading (ppm): 0.0	2 gal	5.90	0.025	11.38	2912	—	—	32
Well Casing Diameter & Material								
Type: 1" Stainless Steel								
Total Well Depth (TD): 75								
Static Water Level (WL): —								
One Casing Volume(gal/L): —								
Start Purge (hrs): 0849								
End Purge (hrs): 0905								
Total Purge Time (min): 16								
Total Vol. Purged (gal/L): 2.5 gal								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
VOCs	HCl	2 40-mL glass vials	yes

OBSERVATIONS / NOTES:

No stains, odors, or elevated PID readings
Temporary Well screen set from 71 ft to 75 ft bgs
Pulled tubing 1.5 feet off bottom
Purge rate: —

Used check valve to collect sample
Problems getting flow, sand locked up 1st attempt

Circle if Applicable:

MS/MSD	Duplicate ID No.:
—	—

Signature(s):

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: NWIRP Calverton
Project No.: 112G02750

[] Domestic Well Data
[] Monitoring Well Data
[X] Other Well Type: Temporary Well
[] QA Sample Type:

Sample ID No.: FT-GW437-2125
Sample Location: FT-TW437
Sampled By: J. Birkett
C.O.C. No.:
Type of Sample:
[X] Low Concentration
[] High Concentration

SAMPLING DATA:

Date: 12-14-11	Color (Visual)	pH (S.U.)	S.C. (mS/cm)	Temp. (°C)	Turbidity (NTU)	DO (mg/l)	Salinity (%)	ORP (mV)
Time: 1023								
Method: Peristaltic	faint color	—	—	—	—	—	—	—

PURGE DATA:

Date: 12-14-11	Volume	pH	S.C.	Temp.	Turbidity	DO	Salinity	ORP
Method: Peristaltic	0.5 gal	—	—	—	—	—	—	—
Monitor Reading (ppm): —	2 gal	—	—	—	—	—	—	—
Well Casing Diameter & Material								
Type: 1" Stainless Steel								
Total Well Depth (TD): 25								
Static Water Level (WL): —								
One Casing Volume(gal/L): —								
Start Purge (hrs): 1013								
End Purge (hrs): 1023								
Total Purge Time (min): 10								
Total Vol. Purged (gal/L): 2 gal								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
VOCs	HCl	2 40mL glass vials	yes

OBSERVATIONS / NOTES:

No stains or odors
Tubing pulled 1.5 feet off bottom
Temporary well screened from 21 to 25 ft bgs
Purge rate: 750 mL/min

No geochemical parameters

Circle if Applicable:

MS/MSD	Duplicate ID No.:
—	—

Signature(s): J. Birkett

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: NWIRP Calverton
Project No.: 112G02750

[] Domestic Well Data
[] Monitoring Well Data
[X] Other Well Type: Temporary Well
[] QA Sample Type:

Sample ID No.: FT-GW437-3135
Sample Location: FT-TW437
Sampled By: J. Birkett
C.O.C. No.:
Type of Sample:
[X] Low Concentration
[] High Concentration

SAMPLING DATA:

Date: 12-14-11	Color	pH	S.C.	Temp.	Turbidity	DO	Salinity	ORP
Time: 1026	(Visual)	(S.U.)	(mS/cm)	(^{0}C)	(NTU)	(mg/l)	(%)	(mV)
Method: Peristaltic	tan color	—	—	—	—	—	—	—

PURGE DATA:

Date: 12-14-11	Volume	pH	S.C.	Temp.	Turbidity	DO	Salinity	ORP
Method: Peristaltic	0.5 gal	—	—	—	—	—	—	—
Monitor Reading (ppm): —	2 gal	—	—	—	—	—	—	—
Well Casing Diameter & Material								
Type: 1" Stainless Steel								
Total Well Depth (TD): 35								
Static Water Level (WL): —								
One Casing Volume(gal/L): —								
Start Purge (hrs): 1015								
End Purge (hrs): 1026								
Total Purge Time (min): 11								
Total Vol. Purged (gal/L): 2 gal								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
VOCs	HCl	2 40mL glass vials	yes

OBSERVATIONS / NOTES:

No stains or odors
Tubing pulled 1.5 feet off bottom
Temporary well screened from 31 to 35 ft bgs
Purge rate: mL/min

No geochemical parameters

Circle if Applicable:

MS/MSD	Duplicate ID No.:
—	—

Signature(s):

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: NWIRP Calverton
Project No.: 112G02750

[] Domestic Well Data
[] Monitoring Well Data
[X] Other Well Type: Temporary Well
[] QA Sample Type:

Sample ID No.: FT-GW437-4145
Sample Location: FT-TW437
Sampled By: J. Birkett
C.O.C. No.:
Type of Sample:
[X] Low Concentration
[] High Concentration

SAMPLING DATA:

Date: 12-14-11	Color	pH	S.C.	Temp.	Turbidity	DO	Salinity	ORP
Time: 1048	(Visual)	(S.U.)	(mS/cm)	(°C)	(NTU)	(mg/l)	(%)	(mV)
Method: Peristaltic	tan tint	—	—	—	—	—	—	—

PURGE DATA:

Date: 12-14-11	Volume	pH	S.C.	Temp.	Turbidity	DO	Salinity	ORP
Method: Peristaltic	0.5 gal	—	—	—	—	—	—	—
Monitor Reading (ppm): —	2 gal	—	—	—	—	—	—	—
Well Casing Diameter & Material								
Type: 1" Stainless Steel								
Total Well Depth (TD): 45								
Static Water Level (WL): —								
One Casing Volume(gal/L): —								
Start Purge (hrs): 1032								
End Purge (hrs): 1048								
Total Purge Time (min): 16								
Total Vol. Purged (gal/L): 2.5 gal								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
VOCs	HCl	2 40mL glass vials	yes

OBSERVATIONS / NOTES:

No stains or odors
Tubing pulled 1.5 feet off bottom
Temporary well screened from 41 to 45 ft bgs
Purge rate: 500 mL/min

No geochemical parameters

Circle if Applicable:

MS/MSD	Duplicate ID No.:
—	FT-Dup02-20111214 (1000)

Signature(s):

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: NWIRP Calverton
Project No.: 112G02750

[] Domestic Well Data
[] Monitoring Well Data
[X] Other Well Type: Temporary Well
[] QA Sample Type:

Sample ID No.: FT-GW 437-5155
Sample Location: FT-TW 437
Sampled By: J. Birkett
C.O.C. No.:
Type of Sample:
[X] Low Concentration
[] High Concentration

SAMPLING DATA:

Date: 12-14-11	Color (Visual)	pH (S.U.)	S.C. (mS/cm)	Temp. (°C)	Turbidity (NTU)	DO (mg/l)	Salinity (%)	ORP (mV)
Time: 1045								
Method: Peristaltic	tan color	—	—	—	—	—	—	—

PURGE DATA:

Date: 12-14-11	Volume	pH	S.C.	Temp.	Turbidity	DO	Salinity	ORP
Method: Peristaltic	0.5 gal	—	—	—	—	—	—	—
Monitor Reading (ppm): —	2 gal	—	—	—	—	—	—	—
Well Casing Diameter & Material								
Type: 1" Stainless Steel								
Total Well Depth (TD): 55								
Static Water Level (WL): —								
One Casing Volume(gal/L): —								
Start Purge (hrs): 1033								
End Purge (hrs): 1045								
Total Purge Time (min): 12								
Total Vol. Purged (gal/L): 7.5 gal								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
VOCs	HCl	2 40mL glass vials	yes

OBSERVATIONS / NOTES:

No stains or odors
Tubing pulled 1.5 feet off bottom
Temporary well screened from 51 to 55 ft bgs
Purge rate: 750 mL/min

No geochemical parameters

Circle if Applicable:

MS/MSD — Duplicate ID No.: —

Signature(s):

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: NWIRP Calverton
Project No.: 112G02750

[] Domestic Well Data
[] Monitoring Well Data
[X] Other Well Type: Temporary Well GW Grab
[] QA Sample Type:

Sample ID No.: FT-GW438-3135
Sample Location: FT-TW438
Sampled By: J. Birkett
C.O.C. No.:
Type of Sample:
[X] Low Concentration
[] High Concentration

SAMPLING DATA:

	Color (Visual)	pH (S.U.)	S.C. (mS/cm)	Temp. (°C)	Turbidity (NTU)	DO (mg/l)	Salinity (%)	ORP (mV)
Date: 12-13-11								
Time: 1409								
Method: Peristaltic	tan tint	—	—	—	—	—	—	—

PURGE DATA:

	Volume	pH	S.C.	Temp.	Turbidity	DO	Salinity	ORP
Date: 12-13-11								
Method: Peristaltic	0.5 gal	—	—	—	—	—	—	—
Monitor Reading (ppm): —	2 gal	—	—	—	—	—	—	—
Well Casing Diameter & Material								
Type: 1" Stainless Steel								
Total Well Depth (TD): 35								
Static Water Level (WL): —								
One Casing Volume(gal/L): —								
Start Purge (hrs): 1401								
End Purge (hrs): 1409								
Total Purge Time (min): 8								
Total Vol. Purged (gal/L): 2 gal								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
VOCs	HCl	6 x 40mL glass vials	

OBSERVATIONS / NOTES:

No stains or odors
Tubing pulled 1.5 feet off bottom
Temporary well screened from 31 to 35 ft bgs
Purge rate: 1,000 mL/min

No geochemical parameters

Circle if Applicable:

MS/MSD: yes
Duplicate ID No.: —

Signature(s):

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: NWIRP Calverton
Project No.: 112G02750

[] Domestic Well Data
[] Monitoring Well Data
[X] Other Well Type: Temporary Well
[] QA Sample Type:

Sample ID No.: FT-GW438-2125
Sample Location: FT-TW438
Sampled By: J. Birkett
C.O.C. No.:
Type of Sample:
[X] Low Concentration
[] High Concentration

SAMPLING DATA:

Date: 12-13-11	Color (Visual)	pH (S.U.)	S.C. (mS/cm)	Temp. (^{0}C)	Turbidity (NTU)	DO (mg/l)	Salinity (%)	ORP (mV)
Time: 1417								
Method: Peristaltic	tan tint	—	—	—	—	—	—	—

PURGE DATA:

Date: 12-13-11	Volume	pH	S.C.	Temp.	Turbidity	DO	Salinity	ORP
Method: Peristaltic	0.5 gal	—	—	—	—	—	—	—
Monitor Reading (ppm): —	2 gal	—	—	—	—	—	—	—
Well Casing Diameter & Material								
Type: 1" Stainless Steel								
Total Well Depth (TD): 25								
Static Water Level (WL): —								
One Casing Volume(gal/L): —								
Start Purge (hrs): 1408								
End Purge (hrs): 1417								
Total Purge Time (min): 9								
Total Vol. Purged (gal/L): 2 gal								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
VOCs	HCl	2 40mL glass vials	yes

OBSERVATIONS / NOTES:

No stains or odors
Tubing pulled 1.5 feet off bottom
Temporary well screened from 21 to 25 ft bgs
Purge rate: 1,000 mL/min

No geochemical parameters

Circle if Applicable:

MS/MSD	Duplicate ID No.:
—	—

Signature(s): [signature]

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: NWIRP Calverton
Project No.: 112G02750

[] Domestic Well Data
[] Monitoring Well Data
[X] Other Well Type: Temporary Well
[] QA Sample Type:

Sample ID No.: FT-GW438-4145
Sample Location: FT-TW438
Sampled By: J. Birkett
C.O.C. No.:
Type of Sample:
[X] Low Concentration
[] High Concentration

SAMPLING DATA:

Date: 12-13-11	Color (Visual)	pH (S.U.)	S.C. (mS/cm)	Temp. (°C)	Turbidity (NTU)	DO (mg/l)	Salinity (%)	ORP (mV)
Time: 1424								
Method: Peristaltic	tan color	—	—	—	—	—	—	—

PURGE DATA:

Date: 12-13-11	Volume	pH	S.C.	Temp.	Turbidity	DO	Salinity	ORP
Method: Peristaltic	0.5 gal	—	—	—	—	—	—	—
Monitor Reading (ppm): —	2 gal	—	—	—	—	—	—	—
Well Casing Diameter & Material								
Type: 1" Stainless Steel								
Total Well Depth (TD): 45								
Static Water Level (WL): —								
One Casing Volume(gal/L): —								
Start Purge (hrs): 1413								
End Purge (hrs): 1424								
Total Purge Time (min): 11								
Total Vol. Purged (gal/L): 2 gal								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
VOCs	HCl	2 40mL glass vials	yes

OBSERVATIONS / NOTES:

No stains or odors
Tubing pulled 1.5 feet off bottom
Temporary well screened from 41 to 45 ft bgs
Purge rate: 750 mL/min

No geochemical parameters

Circle if Applicable:

MS/MSD	Duplicate ID No.:
—	—

Signature(s):

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: NWIRP Calverton
Project No.: 112G02750

[] Domestic Well Data
[] Monitoring Well Data
[X] Other Well Type: Temporary Well
[] QA Sample Type:

Sample ID No.: FT-GW438-5155
Sample Location: FT-TW438
Sampled By: J. Birkett
C.O.C. No.:
Type of Sample:
[X] Low Concentration
[] High Concentration

SAMPLING DATA:

Date: 12-13-11	Color (Visual)	pH (S.U.)	S.C. (mS/cm)	Temp. (°C)	Turbidity (NTU)	DO (mg/l)	Salinity (%)	ORP (mV)
Time: 1426								
Method: Peristaltic	tan color	—	—	—	—	—	—	—

PURGE DATA:

Date: 12-13-11	Volume	pH	S.C.	Temp.	Turbidity	DO	Salinity	ORP
Method: Peristaltic	0.5 gal	—	—	—	—	—	—	—
Monitor Reading (ppm): —	2 gal	—	—	—	—	—	—	—
Well Casing Diameter & Material								
Type: 1" Stainless Steel								
Total Well Depth (TD): 55								
Static Water Level (WL): —								
One Casing Volume(gal/L): —								
Start Purge (hrs): 1419								
End Purge (hrs): 1426								
Total Purge Time (min): 7								
Total Vol. Purged (gal/L): 2 gal								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
VOCs	HCl	2 40mL glass vials	yes

OBSERVATIONS / NOTES:

No stains or odors
Tubing pulled 1.5 feet off bottom
Temporary well screened from 51 to 55 ft bgs
Purge rate: 1,000 mL/min

No geochemical parameters

Circle if Applicable:

MS/MSD	Duplicate ID No.:
—	—

Signature(s): [signature]

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: NWIRP Calverton
Project No.: 112G02750

[] Domestic Well Data
[] Monitoring Well Data
[X] Other Well Type: Temporary Well
[] QA Sample Type:

Sample ID No.: FT-GW439-2125
Sample Location: FT-TW439
Sampled By: J. Birkett
C.O.C. No.:
Type of Sample:
[X] Low Concentration
[] High Concentration

SAMPLING DATA:

Date: 12-13-11	Color (Visual)	pH (S.U.)	S.C. (mS/cm)	Temp. (°C)	Turbidity (NTU)	DO (mg/l)	Salinity (%)	ORP (mV)
Time: 1048								
Method: Peristaltic	tan color	—	—	—	—	—	—	—

PURGE DATA:

Date: 12-13-11	Volume	pH	S.C.	Temp.	Turbidity	DO	Salinity	ORP
Method: Peristaltic	0.5 gal	—	—	—	—	—	—	—
Monitor Reading (ppm): —	2 gal	—	—	—	—	—	—	—
Well Casing Diameter & Material								
Type: 1" Stainless Steel								
Total Well Depth (TD): 25								
Static Water Level (WL): —								
One Casing Volume(gal/L): —								
Start Purge (hrs): 1040								
End Purge (hrs): 1048								
Total Purge Time (min): 8								
Total Vol. Purged (gal/L): 2 gal								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
VOCs	HCl	2 40mL glass vials	yes

OBSERVATIONS / NOTES:

No stains or odors
Tubing pulled 1.5 feet off bottom
Temporary well screened from 21 to 25 ft bgs
Purge rate: 1,000 mL/min

No geochemical parameters

Circle if Applicable:

MS/MSD	Duplicate ID No.:
—	—

Signature(s): [signature]

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: NWIRP Calverton
Project No.: 112G02750

[] Domestic Well Data
[] Monitoring Well Data
[X] Other Well Type: Temporary Well
[] QA Sample Type:

Sample ID No.: FT-GW439-3135
Sample Location: FT-TW439
Sampled By: J. Birkett
C.O.C. No.:
Type of Sample:
[X] Low Concentration
[] High Concentration

SAMPLING DATA:

Date: 12-13-11	Color	pH	S.C.	Temp.	Turbidity	DO	Salinity	ORP
Time: 1051	(Visual)	(S.U.)	(mS/cm)	(°C)	(NTU)	(mg/l)	(%)	(mV)
Method: Peristaltic	tan color	—	—	—	—	—	—	—

PURGE DATA:

Date: 12-13-11	Volume	pH	S.C.	Temp.	Turbidity	DO	Salinity	ORP
Method: Peristaltic	0.5 gal	—	—	—	—	—	—	—
Monitor Reading (ppm): —	2 gal	—	—	—	—	—	—	—
Well Casing Diameter & Material								
Type: 1" Stainless Steel								
Total Well Depth (TD): 35								
Static Water Level (WL): —								
One Casing Volume(gal/L): —								
Start Purge (hrs): 1045								
End Purge (hrs): 1051								
Total Purge Time (min): 6								
Total Vol. Purged (gal/L): 2gal								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
VOCs	HCl	2 40mL glass vials	yes

OBSERVATIONS / NOTES:

No stains or odors
Tubing pulled 1.5 feet off bottom
Temporary well screened from 31 to 35 ft bgs
Purge rate: 1,000mL/min

No geochemical parameters

Circle if Applicable:

MS/MSD	Duplicate ID No.:
—	FT-Dup01-20111213 (1000)

Signature(s): J. Birkett

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: NWIRP Calverton
Project No.: 112G02750

[] Domestic Well Data
[] Monitoring Well Data
[X] Other Well Type: Temporary Well
[] QA Sample Type:

Sample ID No.: FT-GW439-4145
Sample Location: FT-TW439
Sampled By: J. Birkett
C.O.C. No.:
Type of Sample:
[X] Low Concentration
[] High Concentration

SAMPLING DATA:

Date: 12-13-11	Color (Visual)	pH (S.U.)	S.C. (mS/cm)	Temp. (^{0}C)	Turbidity (NTU)	DO (mg/l)	Salinity (%)	ORP (mV)
Time: 1059								
Method: Peristaltic	tan and silty	—	—	—	—	—	—	—

PURGE DATA:

Date: 12-13-11	Volume	pH	S.C.	Temp.	Turbidity	DO	Salinity	ORP
Method: Peristaltic	0.5 gal	—	—	—	—	—	—	—
Monitor Reading (ppm): —	2 gal	—	—	—	—	—	—	—
Well Casing Diameter & Material								
Type: 1" Stainless Steel								
Total Well Depth (TD): 45								
Static Water Level (WL): —								
One Casing Volume(gal/L): —								
Start Purge (hrs): 1052								
End Purge (hrs): 1059								
Total Purge Time (min): 7								
Total Vol. Purged (gal/L): 2 gal								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
VOCs	HCl	2 40mL glass vials	yes

OBSERVATIONS / NOTES:

No stains or odors
Tubing pulled 1.5 feet off bottom
Temporary well screened from 41 to 45 ft bgs
Purge rate: 1,000 mL/min

No geochemical parameters

Circle if Applicable:

MS/MSD	Duplicate ID No.:
—	—

Signature(s):

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: NWIRP Calverton
Project No.: 112G02750

[] Domestic Well Data
[] Monitoring Well Data
[X] Other Well Type: Temporary Well
[] QA Sample Type:

Sample ID No.: FT-GW439-5155
Sample Location: FT-TW 439
Sampled By: J. Birkett
C.O.C. No.:
Type of Sample:
[X] Low Concentration
[] High Concentration

SAMPLING DATA:

Date: 12-13-11	Color (Visual)	pH (S.U.)	S.C. (mS/cm)	Temp. (^{0}C)	Turbidity (NTU)	DO (mg/l)	Salinity (%)	ORP (mV)
Time: 1120								
Method: Peristaltic	tan tint	—	—	—	—	—	—	—

PURGE DATA:

Date: 12-13-11	Volume	pH	S.C.	Temp.	Turbidity	DO	Salinity	ORP
Method: Peristaltic	0.5 gal	—	—	—	—	—	—	—
Monitor Reading (ppm): —	2 gal	—	—	—	—	—	—	—
Well Casing Diameter & Material								
Type: 1" Stainless Steel								
Total Well Depth (TD): 55								
Static Water Level (WL): —								
One Casing Volume(gal/L): —								
Start Purge (hrs): 1053								
End Purge (hrs): 1120*								
Total Purge Time (min): 15 min								
Total Vol. Purged (gal/L): 3 gal								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
VOCs	HCl	2 40mL glass vials	yes

OBSERVATIONS / NOTES:

No stains or odors
Tubing pulled 1.5 feet off bottom
Temporary well screened from 51 to 55 ft bgs
Purge rate: 1,000mL/min

No geochemical parameters

* Problems pulling water (initial purge water very silty + sandy)

Circle if Applicable:

MS/MSD	Duplicate ID No.:
—	—

Signature(s):

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: NWIRP Calverton
Project No.: 112G02750

[] Domestic Well Data
[] Monitoring Well Data
[X] Other Well Type: Temporary Well
[] QA Sample Type:

Sample ID No.: FT-GW440-2125
Sample Location: FT-TW440
Sampled By: J. Birkett
C.O.C. No.:
Type of Sample:
[X] Low Concentration
[] High Concentration

SAMPLING DATA:

Date: 12-14-11	Color	pH	S.C.	Temp.	Turbidity	DO	Salinity	ORP
Time: 1341	(Visual)	(S.U.)	(mS/cm)	(^{0}C)	(NTU)	(mg/l)	(%)	(mV)
Method: Peristaltic	tan color	—	—	—	—	—	—	—

PURGE DATA:

Date: 12-14-11	Volume	pH	S.C.	Temp.	Turbidity	DO	Salinity	ORP
Method: Peristaltic	0.5 gal	—	—	—	—	—	—	—
Monitor Reading (ppm): —	2 gal	—	—	—	—	—	—	—
Well Casing Diameter & Material								
Type: 1" Stainless Steel								
Total Well Depth (TD): 25								
Static Water Level (WL): —								
One Casing Volume(gal/L): —								
Start Purge (hrs): 1328								
End Purge (hrs): 1341								
Total Purge Time (min): 13								
Total Vol. Purged (gal/L): 2 gal								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
VOCs	HCl	2 40mL glass vials	yes

OBSERVATIONS / NOTES:

No stains or odors
Tubing pulled 1.5 feet off bottom
Temporary well screened from 21 to 25 ft bgs
Purge rate: 500 mL/min

No geochemical parameters

Circle if Applicable:

MS/MSD	Duplicate ID No.:
—	—

Signature(s): J. Birkett

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: NWIRP Calverton
Project No.: 112G02750

[] Domestic Well Data
[] Monitoring Well Data
[X] Other Well Type: Temporary Well
[] QA Sample Type:

Sample ID No.: FT-GW440-3135
Sample Location: FT-TW 440
Sampled By: J. Birkett
C.O.C. No.:
Type of Sample:
[X] Low Concentration
[] High Concentration

SAMPLING DATA:

Date: 12-14-11	Color (Visual)	pH (S.U.)	S.C. (mS/cm)	Temp. (°C)	Turbidity (NTU)	DO (mg/l)	Salinity (%)	ORP (mV)
Time: 1343								
Method: Peristaltic	tan color	—	—	—	—	—	—	—

PURGE DATA:

Date: 12-14-11	Volume	pH	S.C.	Temp.	Turbidity	DO	Salinity	ORP
Method: Peristaltic	0.5 gal	—	—	—	—	—	—	—
Monitor Reading (ppm): —	2 gal	—	—	—	—	—	—	—
Well Casing Diameter & Material								
Type: 1" Stainless Steel								
Total Well Depth (TD): 35								
Static Water Level (WL): —								
One Casing Volume(gal/L): —								
Start Purge (hrs): 1333								
End Purge (hrs): 1343								
Total Purge Time (min): 10								
Total Vol. Purged (gal/L): 2.5 gal								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
VOCs	HCl	2 40mL glass vials	yes

OBSERVATIONS / NOTES:

No stains or odors
Tubing pulled 1.5 feet off bottom
Temporary well screened from 31 to 35 ft bgs
Purge rate: 1,000 mL/min

No geochemical parameters

Circle if Applicable:

MS/MSD	Duplicate ID No.:
—	—

Signature(s):

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: NWIRP Calverton
Project No.: 112G02750

[] Domestic Well Data
[] Monitoring Well Data
[X] Other Well Type: Temporary Well
[] QA Sample Type:

Sample ID No.: FT-GW440-4145
Sample Location: FT-TW440
Sampled By: J. Birkett
C.O.C. No.:
Type of Sample:
[X] Low Concentration
[] High Concentration

SAMPLING DATA:

Date: 12-14-11	Color (Visual)	pH (S.U.)	S.C. (mS/cm)	Temp. (°C)	Turbidity (NTU)	DO (mg/l)	Salinity (%)	ORP (mV)
Time: 1352								
Method: Peristaltic	tan color	—	—	—	—	—	—	—

PURGE DATA:

Date: 12-14-11	Volume	pH	S.C.	Temp.	Turbidity	DO	Salinity	ORP
Method: Peristaltic	0.5 gal	—	—	—	—	—	—	—
Monitor Reading (ppm): —	2 gal	—	—	—	—	—	—	—
Well Casing Diameter & Material								
Type: 1" Stainless Steel								
Total Well Depth (TD): 45								
Static Water Level (WL): —								
One Casing Volume(gal/L): —								
Start Purge (hrs): 1346								
End Purge (hrs): 1352								
Total Purge Time (min): 6								
Total Vol. Purged (gal/L): 2 gal								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
VOCs	HCl	2 40mL glass vials	yes

OBSERVATIONS / NOTES:

No stains or odors
Tubing pulled 1.5 feet off bottom
Temporary well screened from 41 to 45 ft bgs
Purge rate: 1,000 mL/min

No geochemical parameters

Circle if Applicable:

MS/MSD	Duplicate ID No.:
—	—

Signature(s):

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: NWIRP Calverton
Project No.: 112G02750

[] Domestic Well Data
[] Monitoring Well Data
[X] Other Well Type: Temporary Well
[] QA Sample Type:

Sample ID No.: FT-GW440-5155
Sample Location: FT-TW 440
Sampled By: J. Birkett
C.O.C. No.:
Type of Sample:
[X] Low Concentration
[] High Concentration

SAMPLING DATA:

Date: 12-14-11	Color (Visual)	pH (S.U.)	S.C. (mS/cm)	Temp. (^{0}C)	Turbidity (NTU)	DO (mg/l)	Salinity (%)	ORP (mV)
Time: 1357								
Method: Peristaltic	tan color	—	—	—	—	—	—	—

PURGE DATA:

Date: 12-14-11	Volume	pH	S.C.	Temp.	Turbidity	DO	Salinity	ORP
Method: Peristaltic	0.5 gal	—	—	—	—	—	—	—
Monitor Reading (ppm): —	2 gal	—	—	—	—	—	—	—
Well Casing Diameter & Material								
Type: 1" Stainless Steel								
Total Well Depth (TD): 55								
Static Water Level (WL): —								
One Casing Volume(gal/L): —								
Start Purge (hrs): 1347								
End Purge (hrs): 1357								
Total Purge Time (min): 10								
Total Vol. Purged (gal/L): 2.5 gal								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
VOCs	HCl	2 40mL glass vials	yes

OBSERVATIONS / NOTES:

No stains or odors
Tubing pulled 1.5 feet off bottom
Temporary well screened from 51 to 55 ft bgs
Purge rate: 750 mL/min

No geochemical parameters

Circle if Applicable:

MS/MSD	Duplicate ID No.:
—	—

Signature(s):

APPENDIX C

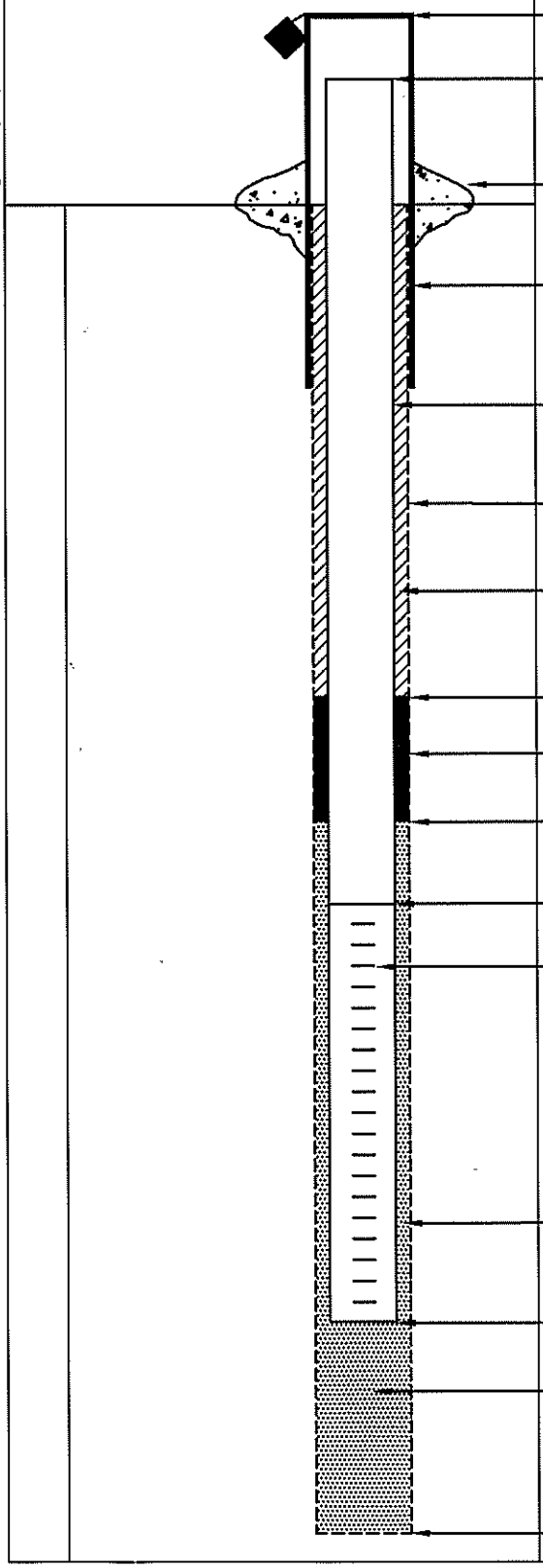
WELL CONSTRUCTION LOGS AND SURVEY DATA

WELL NO.: FT-PZ 451S

Tetra Tech NUS, Inc.

OVERBURDEN MONITORING WELL SHEET STICK-UP

PROJECT NWIRP Calverton	LOCATION FT-PZ451S	DRILLER J. Diamond
PROJECT NO. 112G02750	BORING FT-PZ451S	DRILLING METHOD DPT
DATE BEGUN 12-12-11	DATE COMPLETED 12-12-11	
FIELD GEOLOGIST J. Birkett		DEVELOPMENT METHOD Check Valve
GROUND ELEVATION	DATUM	



ELEVATION/HEIGHT OF TOP OF SURFACE CASING: 13'

ELEVATION/HEIGHT OF TOP OF RISER PIPE: 12.75

TYPE OF SURFACE SEAL: Concrete

I.D. OF SURFACE CASING: 3 1/2"

TYPE OF SURFACE CASING: Steel protective casing (round)

RISER PIPE I.D.: 1"

TYPE OF RISER PIPE: Schedule 40 PVC

BOREHOLE DIAMETER: 3 1/4"

TYPE OF BACKFILL: NA

ELEVATION/DEPTH TOP OF SEAL: 1'

TYPE OF SEAL: Bentonite granules

DEPTH TOP OF SAND PACK: 2'

ELEVATION/DEPTH TOP OF SCREEN: 5'

TYPE OF SCREEN: Prepacked (2.4" OD) Schedule 40 PVC

SLOT SIZE x LENGTH: 0.010" x 10'

I.D. OF SCREEN: 1"

TYPE OF SAND PACK: #1 Silica Sand

ELEVATION/DEPTH BOTTOM OF SCREEN: 15'

ELEVATION/DEPTH BOTTOM OF SAND PACK: 15'

BACKFILL MATERIAL BELOW SAND: NA

ELEVATION/DEPTH OF HOLE: 15'

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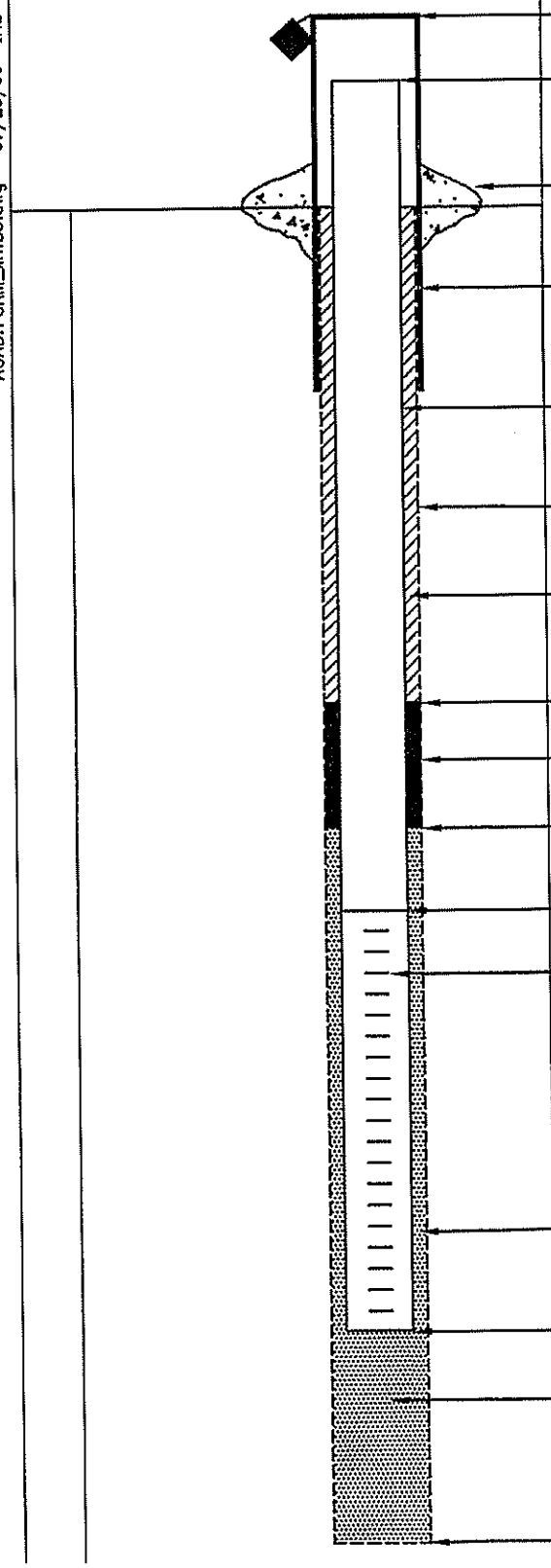
WELL NO.: FT-PZ452S

Tetra Tech NUS, Inc.

OVERBURDEN MONITORING WELL SHEET STICK-UP

PROJECT NWIRP Calverton	LOCATION FT-PZ452	DRILLER J. Diamond
PROJECT NO. 112G02750	BORING FT-PZ452	DRILLING METHOD DPT
DATE BEGUN 12-12-11	DATE COMPLETED 12-12-11	
FIELD GEOLOGIST J. Birkett		DEVELOPMENT METHOD Check Valve
GROUND ELEVATION	DATUM	



ELEVATION/HEIGHT OF TOP OF SURFACE CASING: 13'

ELEVATION/HEIGHT OF TOP OF RISER PIPE: 12.75'

TYPE OF SURFACE SEAL: Concrete

I.D. OF SURFACE CASING: 3 1/2"

TYPE OF SURFACE CASING: ~~Schedule~~ Steel Protective Casing Round

RISER PIPE I.D.: 1"

TYPE OF RISER PIPE: Schedule 40 PVC

BOREHOLE DIAMETER: 3 1/4"

TYPE OF BACKFILL: NA

ELEVATION/DEPTH TOP OF SEAL: 12'

TYPE OF SEAL: Bentonite granules (hydrated)

DEPTH TOP OF SAND PACK: 4'

ELEVATION/DEPTH TOP OF SCREEN: 16'

TYPE OF SCREEN: Prepacked Schedule 40 PVC (2.4" OD)

SLOT SIZE x LENGTH: 0.010" x 10'

I.D. OF SCREEN: 1"

TYPE OF SAND PACK: #1 Silica Sand

ELEVATION/DEPTH BOTTOM OF SCREEN: 16'

ELEVATION/DEPTH BOTTOM OF SAND PACK: 16'

BACKFILL MATERIAL BELOW SAND: NA

ELEVATION/DEPTH OF HOLE: 16'

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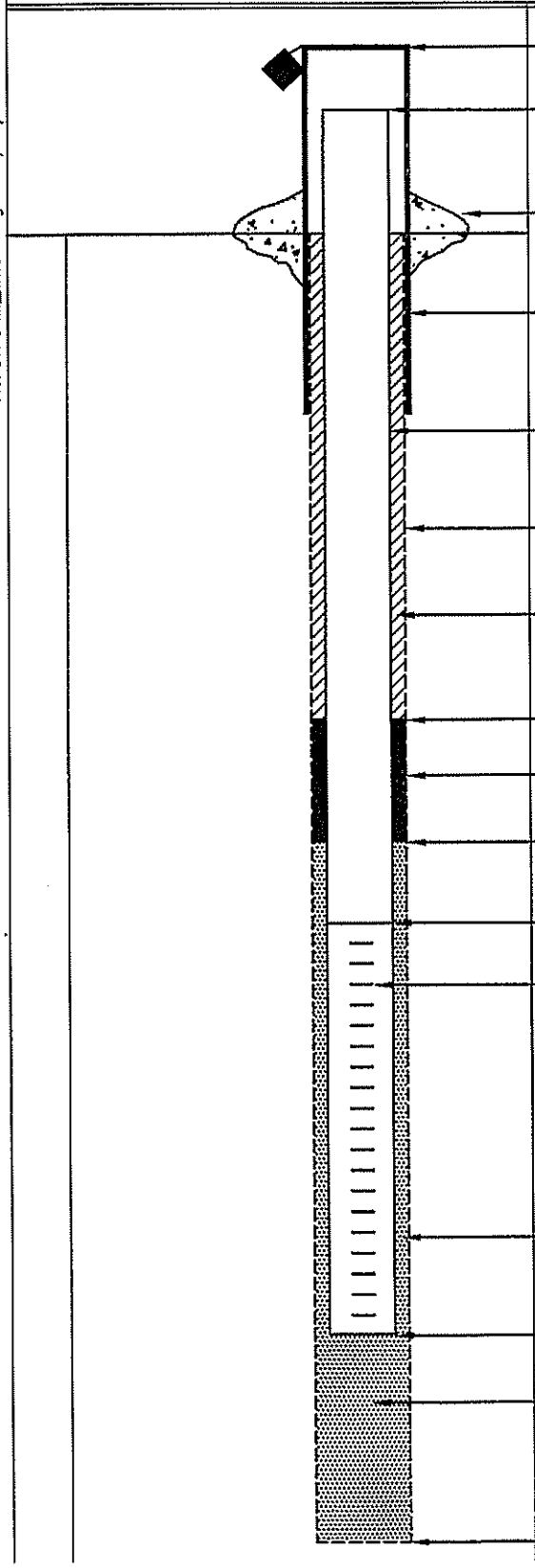
WELL NO.: FT-PZ453S

Tetra Tech NUS, Inc.

OVERBURDEN MONITORING WELL SHEET STICK-UP

PROJECT NWIRP Calverton	LOCATION FT-PZ453	DRILLER J. Diamond
PROJECT NO. 112602750	BORING FT-PZ453	DRILLING METHOD DPT
DATE BEGUN 12-12-11	DATE COMPLETED 12-12-11	
FIELD GEOLOGIST J. Birkett		DEVELOPMENT METHOD Check Valve
GROUND ELEVATION	DATUM	



ELEVATION/HEIGHT OF TOP OF SURFACE CASING: 12.75'

ELEVATION/HEIGHT OF TOP OF RISER PIPE: 12.5'

TYPE OF SURFACE SEAL: Concrete

I.D. OF SURFACE CASING: 3 1/2"
TYPE OF SURFACE CASING: Steel Protective Casing (Round

RISER PIPE I.D.: 1"
TYPE OF RISER PIPE: Schedule 40 PVC

BOREHOLE DIAMETER: 3 1/4"

TYPE OF BACKFILL: NA

ELEVATION/DEPTH TOP OF SEAL: 1'

TYPE OF SEAL: Bentonite granules

DEPTH TOP OF SAND PACK: 2'

ELEVATION/DEPTH TOP OF SCREEN: 3'

TYPE OF SCREEN: Prepacked Schedule 40 PVC (2.4" OD)

SLOT SIZE x LENGTH: 0.010" x 10'

I.D. OF SCREEN: 1"

TYPE OF SAND PACK: #1 Silica Sand

ELEVATION/DEPTH BOTTOM OF SCREEN: 13'

ELEVATION/DEPTH BOTTOM OF SAND PACK: 13'
BACKFILL MATERIAL BELOW SAND: NA

ELEVATION/DEPTH OF HOLE: 13

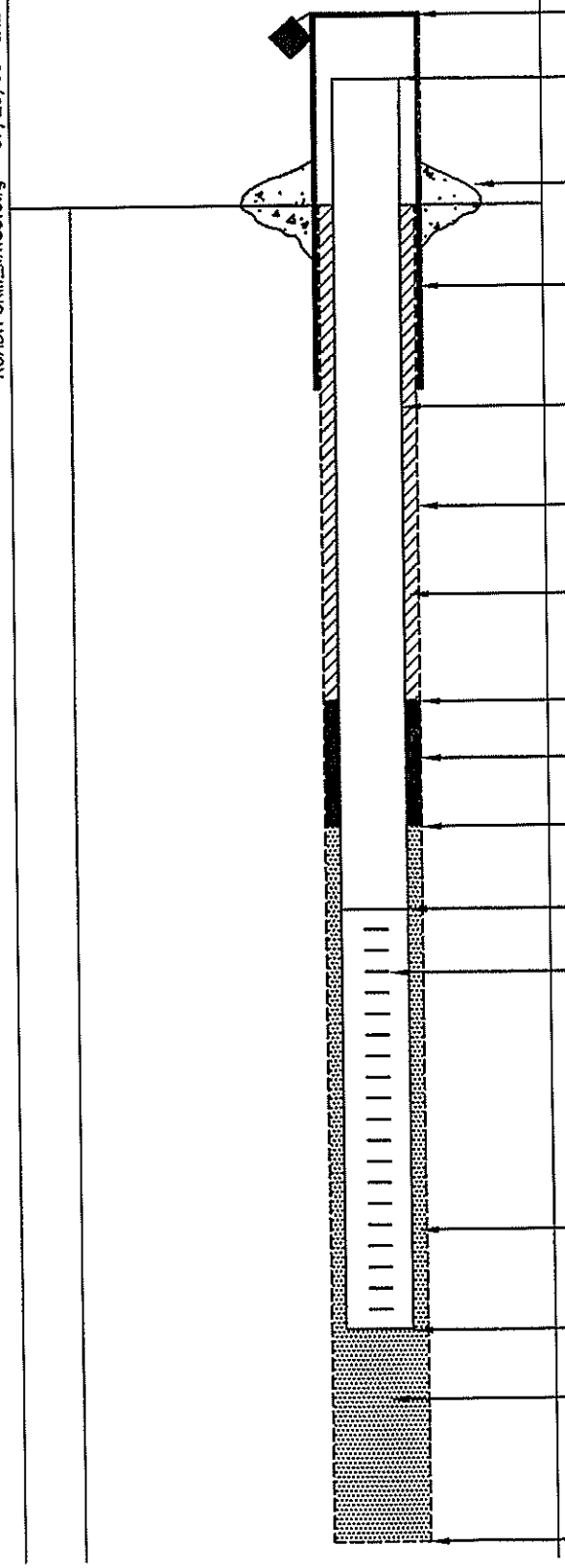
ACAD:FORM_MWSU.dwg 07/20/99 INL

WELL NO.: FT-PZ454S

Tetra Tech NUS, Inc.

OVERBURDEN MONITORING WELL SHEET STICK-UP

PROJECT NWIRP Calverton	LOCATION FT-PZ454	DRILLER J. Diamond
PROJECT NO. 112G02750	BORING FT-PZ454	DRILLING METHOD DPT
DATE BEGUN 12-12-11	DATE COMPLETED 12-12-11	
FIELD GEOLOGIST J. Birkett		DEVELOPMENT METHOD Check Valve
GROUND ELEVATION	DATUM	



ELEVATION/HEIGHT OF TOP OF SURFACE CASING: /3'

ELEVATION/HEIGHT OF TOP OF RISER PIPE: /2.75'

TYPE OF SURFACE SEAL: Concrete

I.D. OF SURFACE CASING: 3 1/2"
TYPE OF SURFACE CASING: Steel Protective Casing (Round)

RISER PIPE I.D.: 1"
TYPE OF RISER PIPE: Schedule 40 PVC

BOREHOLE DIAMETER: 3 1/4"

TYPE OF BACKFILL: NA

ELEVATION/DEPTH TOP OF SEAL: /1'

TYPE OF SEAL: Bentonite granules

DEPTH TOP OF SAND PACK: 2'

ELEVATION/DEPTH TOP OF SCREEN: /3'

TYPE OF SCREEN: Prepacked Schedule 40 PVC (2.4" OD)

SLOT SIZE x LENGTH: 0.010" x 10'

I.D. OF SCREEN: 1"

TYPE OF SAND PACK: #1 Silica Sand

ELEVATION/DEPTH BOTTOM OF SCREEN: /13'

ELEVATION/DEPTH BOTTOM OF SAND PACK: /13'

BACKFILL MATERIAL BELOW SAND: NA

ELEVATION/DEPTH OF HOLE: /13'

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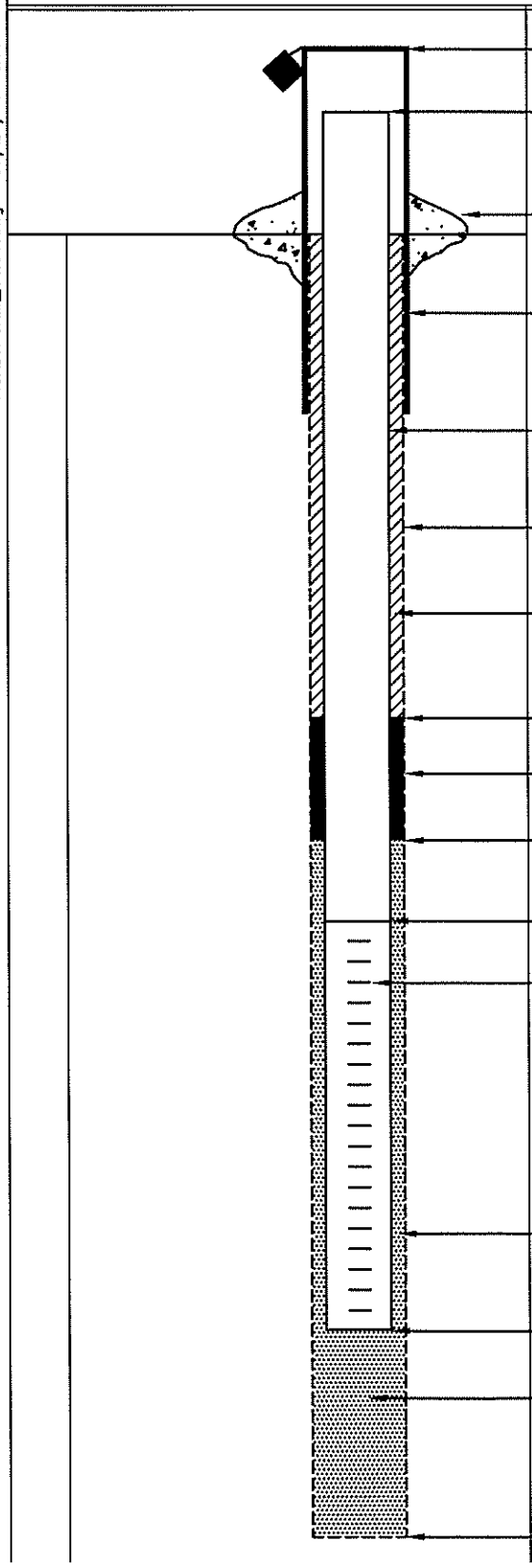
WELL NO.: FT-PZ455$

Tetra Tech NUS, Inc.

OVERBURDEN MONITORING WELL SHEET STICK-UP

PROJECT NWIRP Calverton	LOCATION FT-PZ455	DRILLER J. Diamond
PROJECT NO. 112G02750	BORING FT-PZ455$	DRILLING METHOD DPT
DATE BEGUN 12-6-11	DATE COMPLETED 12-6-11	
FIELD GEOLOGIST J. Birkett		DEVELOPMENT METHOD Check Value
GROUND ELEVATION	DATUM	



ELEVATION/HEIGHT OF TOP OF SURFACE CASING: /3.0'

ELEVATION/HEIGHT OF TOP OF RISER PIPE: /2.75'

TYPE OF SURFACE SEAL: Concrete

I.D. OF SURFACE CASING: 3 1/2"
TYPE OF SURFACE CASING: Protective Steel Casing (Round)

RISER PIPE I.D.: 1" PVC
TYPE OF RISER PIPE: Schedule 40 PVC

BOREHOLE DIAMETER: 3 1/4"

TYPE OF BACKFILL: Cement Bentonite Grout

ELEVATION/DEPTH TOP OF SEAL: /19'

TYPE OF SEAL: Coated Bentonite Pellets (Hydrated)

DEPTH TOP OF SAND PACK: 22'

ELEVATION/DEPTH TOP OF SCREEN: /25'

TYPE OF SCREEN: Prepacked (2.4" OD) Schedule 40 PVC

SLOT SIZE x LENGTH: 0.010" x 10'

I.D. OF SCREEN: 1"

TYPE OF SAND PACK: #1 Silica Sand

ELEVATION/DEPTH BOTTOM OF SCREEN: /35'

ELEVATION/DEPTH BOTTOM OF SAND PACK: /35'
BACKFILL MATERIAL BELOW SAND: NA

ELEVATION/DEPTH OF HOLE: /35'

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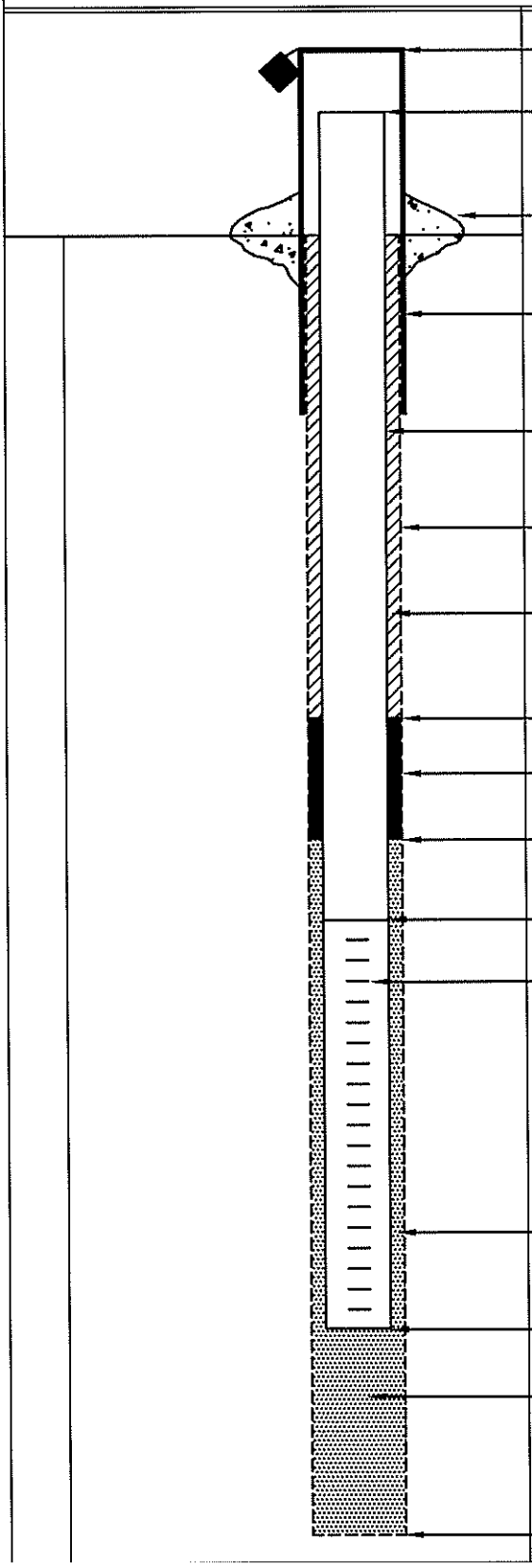
WELL NO.: FT-PZ455I

Tetra Tech NUS, Inc.

OVERBURDEN MONITORING WELL SHEET STICK-UP

PROJECT NWIRP Calverton	LOCATION FT-PZ455I	DRILLER J. Diamond
PROJECT NO. 112G02750	BORING FT-PZ455 I	DRILLING METHOD DPT
DATE BEGUN 12-6-11	DATE COMPLETED	
FIELD GEOLOGIST J. Birkett		DEVELOPMENT METHOD Check Valve
GROUND ELEVATION	DATUM	



ELEVATION/HEIGHT OF TOP OF SURFACE CASING: 13.0'

ELEVATION/HEIGHT OF TOP OF RISER PIPE: 12.75'

TYPE OF SURFACE SEAL: Concrete

I.D. OF SURFACE CASING: 3 1/2"

TYPE OF SURFACE CASING: Protective Steel Casing (Round)

RISER PIPE I.D.: 1"

TYPE OF RISER PIPE: Schedule 40 PVC

BOREHOLE DIAMETER: 3 1/4"

TYPE OF BACKFILL: Cement Bentonite Grout

ELEVATION/DEPTH TOP OF SEAL: 59'

TYPE OF SEAL: Coated Bentonite Pellets

DEPTH TOP OF SAND PACK: 63'

ELEVATION/DEPTH TOP OF SCREEN: 68'

TYPE OF SCREEN: Prepacked Schedule 40 PVC (2.4" OD)

SLOT SIZE x LENGTH: 0.010" x 5'

I.D. OF SCREEN: 1"

TYPE OF SAND PACK: #1 Silica Sand

ELEVATION/DEPTH BOTTOM OF SCREEN: 73'

ELEVATION/DEPTH BOTTOM OF SAND PACK: 73'

BACKFILL MATERIAL BELOW SAND: Natural Formation Collapse

ELEVATION/DEPTH OF HOLE: 79'

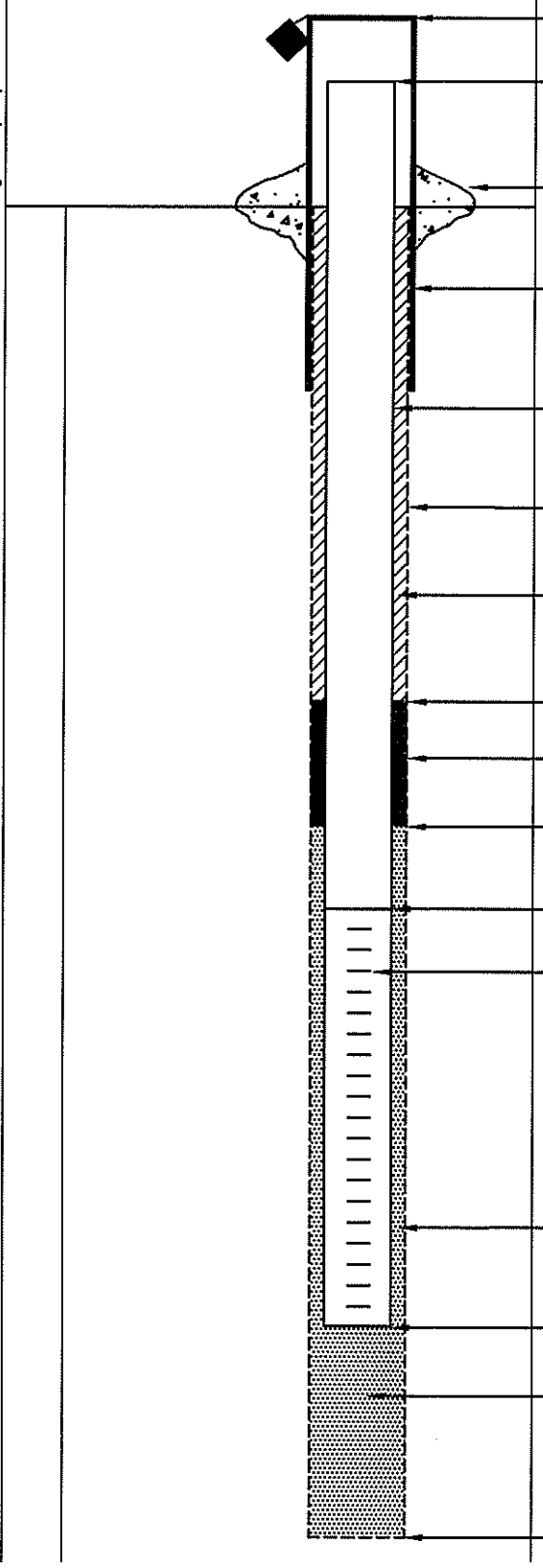
ACAD:FORM_MWSU.dwg 07/20/99 INL

WELL NO.: FT-PZ456$

Tetra Tech NUS, Inc.

OVERBURDEN MONITORING WELL SHEET STICK-UP

PROJECT NWIRP Calverton	LOCATION FT-PZ456	DRILLER J. Diamond
PROJECT NO. 112G02750	BORING FT-PZ456$	DRILLING METHOD DPT
DATE BEGUN 12-9-11	DATE COMPLETED 12-9-11	
FIELD GEOLOGIST J. Birkett		DEVELOPMENT METHOD Check Valve
GROUND ELEVATION	DATUM	



ELEVATION/HEIGHT OF TOP OF SURFACE CASING: /3.0'

ELEVATION/HEIGHT OF TOP OF RISER PIPE: /2.75'

TYPE OF SURFACE SEAL: Concrete

I.D. OF SURFACE CASING: 3 1/2"
TYPE OF SURFACE CASING: Steel Protective Casing (Round)

RISER PIPE I.D.: 1"
TYPE OF RISER PIPE: Schedule 40 PVC

BOREHOLE DIAMETER: 3 1/4"

TYPE OF BACKFILL: NA

ELEVATION/DEPTH TOP OF SEAL: /1'

TYPE OF SEAL: Granular Bentonite (Hydrated)

DEPTH TOP OF SAND PACK: 2'

ELEVATION/DEPTH TOP OF SCREEN: /3'

TYPE OF SCREEN: Prepacked (2.4" OD) Schedule 40 PVC

SLOT SIZE x LENGTH: 0.010" x 10'

I.D. OF SCREEN: 1"

TYPE OF SAND PACK: #1 Silica Sand

ELEVATION/DEPTH BOTTOM OF SCREEN: /13'

ELEVATION/DEPTH BOTTOM OF SAND PACK: /13'

BACKFILL MATERIAL BELOW SAND: NA

ELEVATION/DEPTH OF HOLE: /13'

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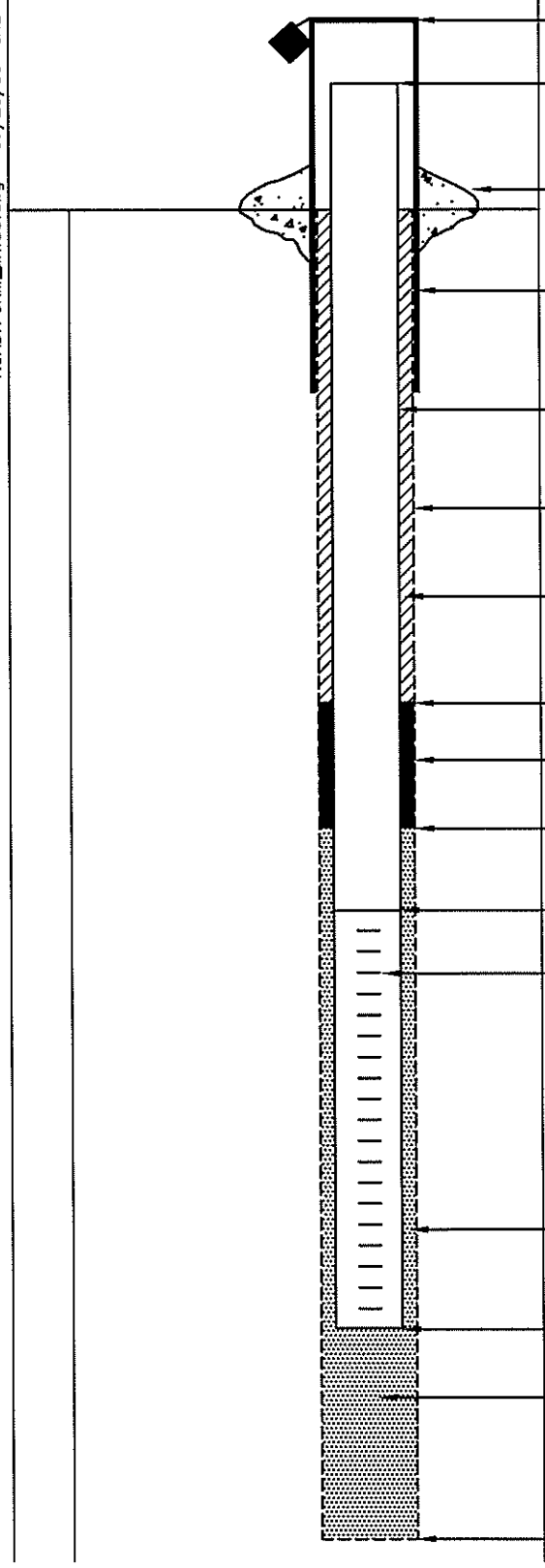
WELL NO.: FT-PZ456I

Tetra Tech NUS, Inc.

OVERBURDEN MONITORING WELL SHEET STICK-UP

PROJECT NWIRP Calverton	LOCATION FT-PZ456	DRILLER J. Diamond
PROJECT NO. 112G02750	BORING FT-PZ456I	DRILLING METHOD DPT
DATE BEGUN 12-9-11	DATE COMPLETED 12-9-11	
FIELD GEOLOGIST J. Birkett		DEVELOPMENT METHOD Check Valve
GROUND ELEVATION	DATUM	



ELEVATION/HEIGHT OF TOP OF SURFACE CASING: 13

ELEVATION/HEIGHT OF TOP OF RISER PIPE: 12.75'

TYPE OF SURFACE SEAL: Concrete

I.D. OF SURFACE CASING: 3 1/2"
TYPE OF SURFACE CASING: Protective Steel Casing (Round

RISER PIPE I.D.: 1"
TYPE OF RISER PIPE: Schedule 40 PVC

BOREHOLE DIAMETER: 3 1/4"

TYPE OF BACKFILL: Cement Bentonite Grout

ELEVATION/DEPTH TOP OF SEAL: 138'

TYPE OF SEAL: Coated Bentonite Pellets

DEPTH TOP OF SAND PACK: 44'

ELEVATION/DEPTH TOP OF SCREEN: 147'

TYPE OF SCREEN: Prepacked (2.4" OD) Schedule 40 PVC

SLOT SIZE x LENGTH: 0.010" x 5'

I.D. OF SCREEN: 1"

TYPE OF SAND PACK: #1 Silica Sand

ELEVATION/DEPTH BOTTOM OF SCREEN: 152'

ELEVATION/DEPTH BOTTOM OF SAND PACK: 152'
BACKFILL MATERIAL BELOW SAND: Natural Collapse

ELEVATION/DEPTH OF HOLE: 160

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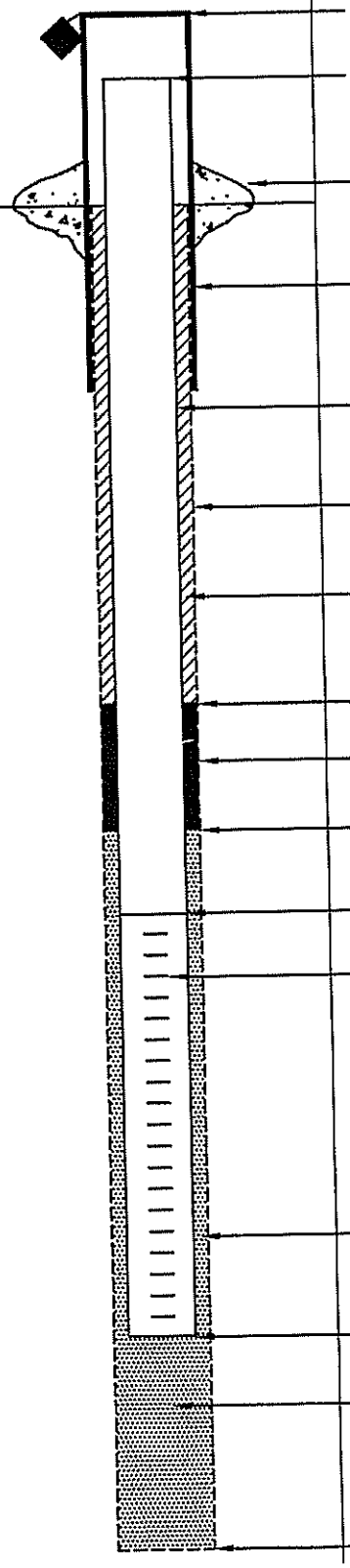
WELL NO.: FT-PZ457S

OVERBURDEN MONITORING WELL SHEET STICK-UP

Tetra Tech NUS, Inc.

PROJECT NWIRP Calverton	LOCATION FT-PZ457	DRILLER E. Moraitis
PROJECT NO. 112G02750	BORING FT-PZ457	DRILLING METHOD DPT
DATE BEGUN 12-2-11	DATE COMPLETED 12-2-11	
FIELD GEOLOGIST J. Birkell		DEVELOPMENT METHOD Check Valve
GROUND ELEVATION	DATUM	



ELEVATION/HEIGHT OF TOP OF SURFACE CASING: 13'

ELEVATION/HEIGHT OF TOP OF RISER PIPE: 12.75'

TYPE OF SURFACE SEAL: Concrete

I.D. OF SURFACE CASING: 3 1/2"
TYPE OF SURFACE CASING: Steel Protective Casing (Round)

RISER PIPE I.D.: 1"
TYPE OF RISER PIPE: Schedule 40 PVC

BOREHOLE DIAMETER: 3 1/4"

TYPE OF BACKFILL: NA

ELEVATION/DEPTH TOP OF SEAL: 1'

TYPE OF SEAL: Bentonite granule hydrated

DEPTH TOP OF SAND PACK: 2.5'

ELEVATION/DEPTH TOP OF SCREEN: 4'

TYPE OF SCREEN: Prepacked 2.4" OD Schedule 40 PVC

SLOT SIZE x LENGTH: 0.010" x 10'

I.D. OF SCREEN: 1"

TYPE OF SAND PACK: #1 Silica Sand

ELEVATION/DEPTH BOTTOM OF SCREEN: 14'

ELEVATION/DEPTH BOTTOM OF SAND PACK: 14'
BACKFILL MATERIAL BELOW SAND:

ELEVATION/DEPTH OF HOLE: 14'

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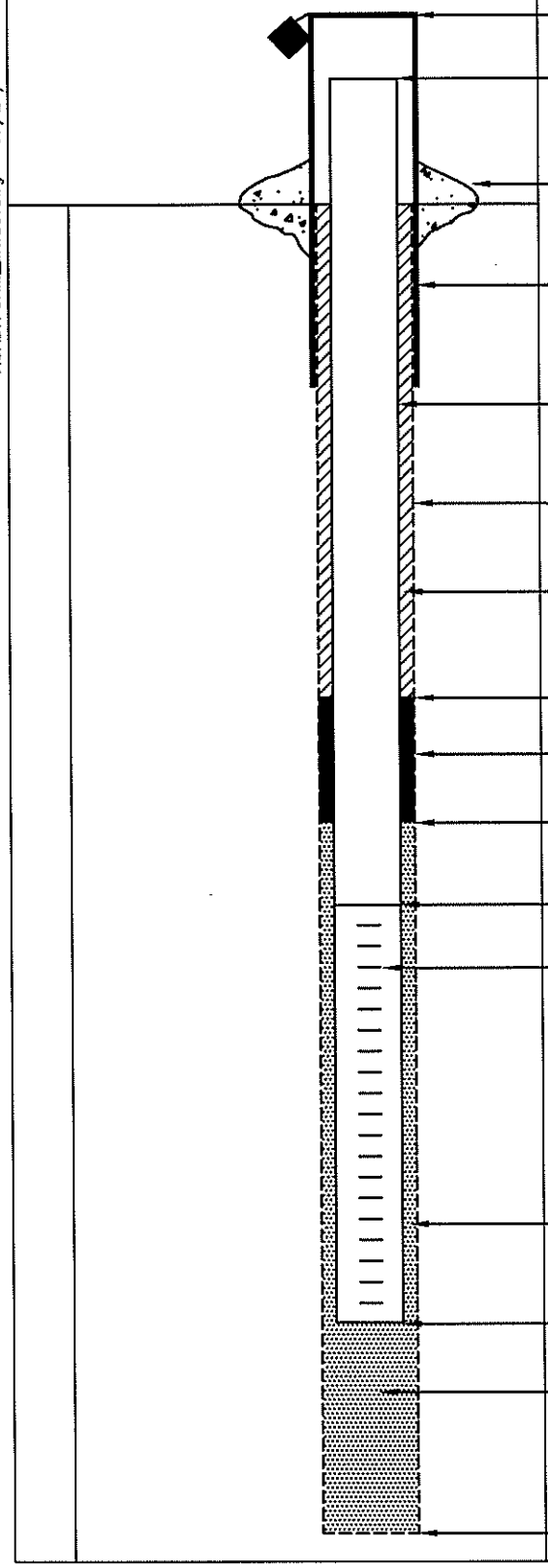
WELL NO.: FT-PZ458S

Tetra Tech NUS, Inc.

OVERBURDEN MONITORING WELL SHEET STICK-UP

PROJECT NWIRP Calverton	LOCATION FT-PZ458	DRILLER Lukas Reiss
PROJECT NO. 112G02750	BORING FT-PZ458S	DRILLING METHOD DPT
DATE BEGUN 11-29-11	DATE COMPLETED 11-29-11	
FIELD GEOLOGIST J. Birkett		DEVELOPMENT METHOD Check Valve
GROUND ELEVATION	DATUM	



ELEVATION/HEIGHT OF TOP OF SURFACE CASING: 1325

ELEVATION/HEIGHT OF TOP OF RISER PIPE: 13

TYPE OF SURFACE SEAL: Concrete

I.D. OF SURFACE CASING: 3½"

TYPE OF SURFACE CASING: Protective Steel Casing (round)

RISER PIPE I.D.: ~~3½"~~ 1" JB 11-29-11

TYPE OF RISER PIPE: ~~Protective Steel casing (round)~~ Schedule 40 PVC

BOREHOLE DIAMETER: 3¼"

TYPE OF BACKFILL: NA

ELEVATION/DEPTH TOP OF SEAL: 1'

TYPE OF SEAL: Hydrated Bentonite granules

DEPTH TOP OF SAND PACK: 2'

ELEVATION/DEPTH TOP OF SCREEN: 3'

TYPE OF SCREEN: Prepacked Schedule 40 PVC

SLOT SIZE x LENGTH: 0.010" x 10'

I.D. OF SCREEN: 2"

TYPE OF SAND PACK: #1 Silica Sand (prepacked screen ~~3¼"~~ 2.4" OD, sand added on top)

ELEVATION/DEPTH BOTTOM OF SCREEN: 13'

ELEVATION/DEPTH BOTTOM OF SAND PACK: 13'

BACKFILL MATERIAL BELOW SAND: NA

ELEVATION/DEPTH OF HOLE: 13'

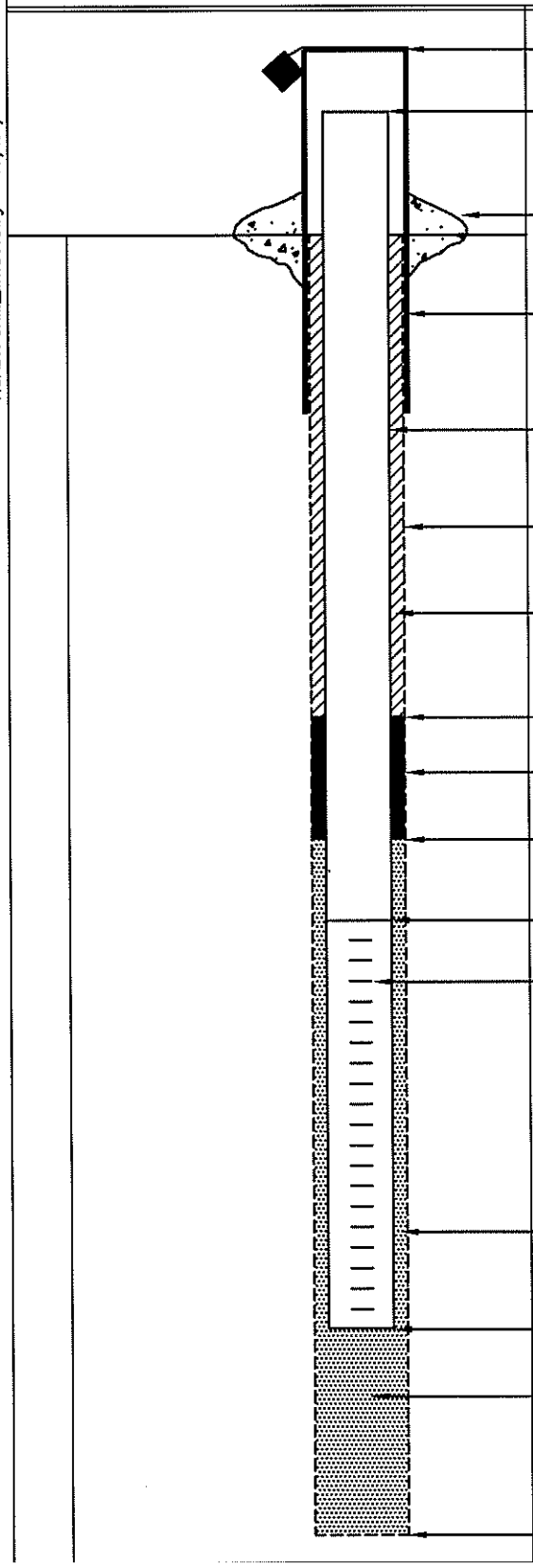
ACAD:FORM_MWSU.dwg 07/20/99 INL

WELL NO.: FT-PZ458I

Tetra Tech NUS, Inc.

OVERBURDEN MONITORING WELL SHEET STICK-UP

PROJECT NWIRP Calverton	LOCATION FT-PZ458I	DRILLER E. Moraitis
PROJECT NO. 112G02750	BORING FT-PZ458I	DRILLING METHOD DPT
DATE BEGUN 12-2-11	DATE COMPLETED 12-2-11	
FIELD GEOLOGIST J. Birkett		DEVELOPMENT METHOD Check Valve
GROUND ELEVATION	DATUM	



ELEVATION/HEIGHT OF TOP OF SURFACE CASING: / 3.0'

ELEVATION/HEIGHT OF TOP OF RISER PIPE: / 2.75'

TYPE OF SURFACE SEAL: Concrete

I.D. OF SURFACE CASING: 3 1/2"

TYPE OF SURFACE CASING: ~~3 1/2"~~ Protective Steel Casing (Round)

RISER PIPE I.D.: 1"

TYPE OF RISER PIPE: Schedule 40 PVC

BOREHOLE DIAMETER: 3 1/4"

TYPE OF BACKFILL: Cement Bentonite Grout

ELEVATION/DEPTH TOP OF SEAL: / 29

TYPE OF SEAL: Coated Bentonite Pellets

DEPTH TOP OF SAND PACK: 36'

ELEVATION/DEPTH TOP OF SCREEN: / 40'

TYPE OF SCREEN: 2.4" OD Prepacked Schedule 40 PVC

SLOT SIZE x LENGTH: 0.010" x 5'

I.D. OF SCREEN: 1"

TYPE OF SAND PACK: #1 Silica Sand

ELEVATION/DEPTH BOTTOM OF SCREEN: / 45'

ELEVATION/DEPTH BOTTOM OF SAND PACK: / 45'

BACKFILL MATERIAL BELOW SAND: NA

ELEVATION/DEPTH OF HOLE: / 45'

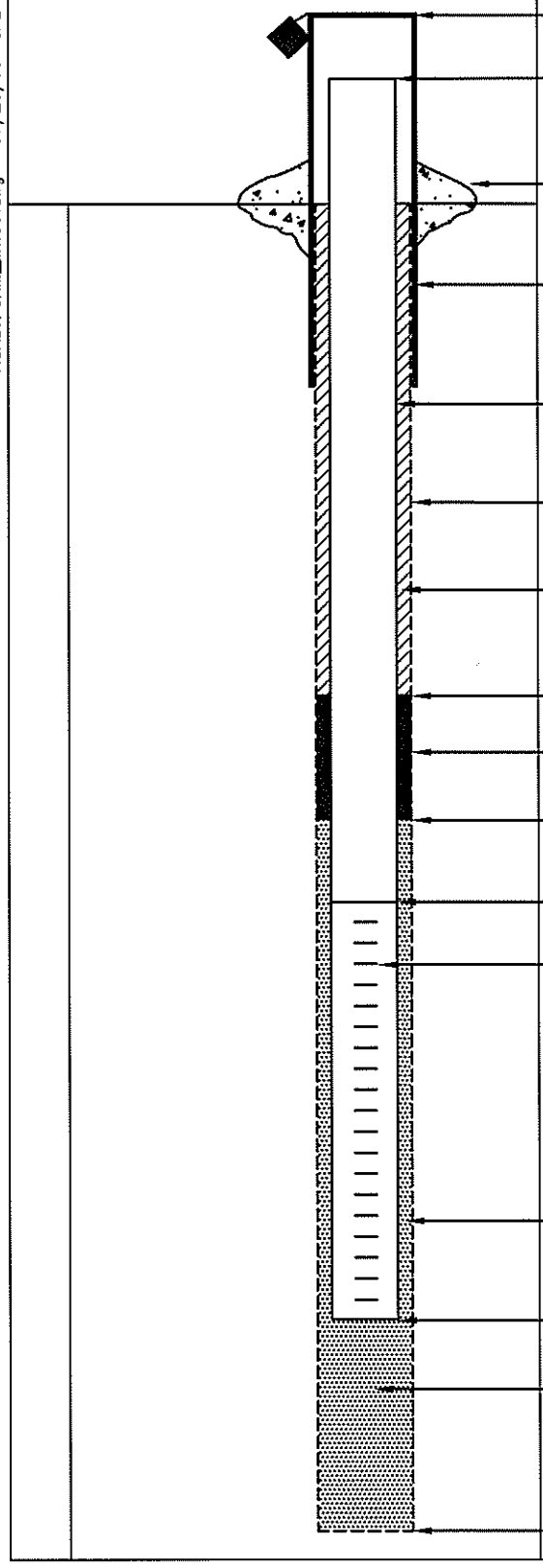
ACAD:FORM_MWSU.dwg 07/20/99 INL

WELL NO.: FT-PZ459S

Tetra Tech NUS, Inc.

OVERBURDEN MONITORING WELL SHEET STICK-UP

PROJECT NWIRP Calverton	LOCATION West of (N-S) River Rd	DRILLER Lukas Reiss
PROJECT NO. 112G02750	BORING FT-PZ459S	DRILLING METHOD DPT
DATE BEGUN 11-18-11	DATE COMPLETED 11-18-11	
FIELD GEOLOGIST J. Birkett		DEVELOPMENT METHOD Check Valve
GROUND ELEVATION	DATUM	



ELEVATION/HEIGHT OF TOP OF SURFACE CASING: 13¼'

ELEVATION/HEIGHT OF TOP OF RISER PIPE: 13'

TYPE OF SURFACE SEAL: Concrete

I.D. OF SURFACE CASING: 3½"
TYPE OF SURFACE CASING: Steel protective casing

RISER PIPE I.D.: 1"
TYPE OF RISER PIPE: Schedule 40 PVC

BOREHOLE DIAMETER: 3¼"

TYPE OF BACKFILL: NA

ELEVATION/DEPTH TOP OF SEAL: 11.5'

TYPE OF SEAL: Granular Bentonite (Hydrated)

DEPTH TOP OF SAND PACK: 5'

ELEVATION/DEPTH TOP OF SCREEN: 17'

TYPE OF SCREEN: Prepack Schedule 40 PVC

SLOT SIZE x LENGTH: 0.010" x 10'

I.D. OF SCREEN: 1"

TYPE OF SAND PACK: #1 Silica Sand

ELEVATION/DEPTH BOTTOM OF SCREEN: 17'

ELEVATION/DEPTH BOTTOM OF SAND PACK: 17'
BACKFILL MATERIAL BELOW SAND: NA

ELEVATION/DEPTH OF HOLE: 17'

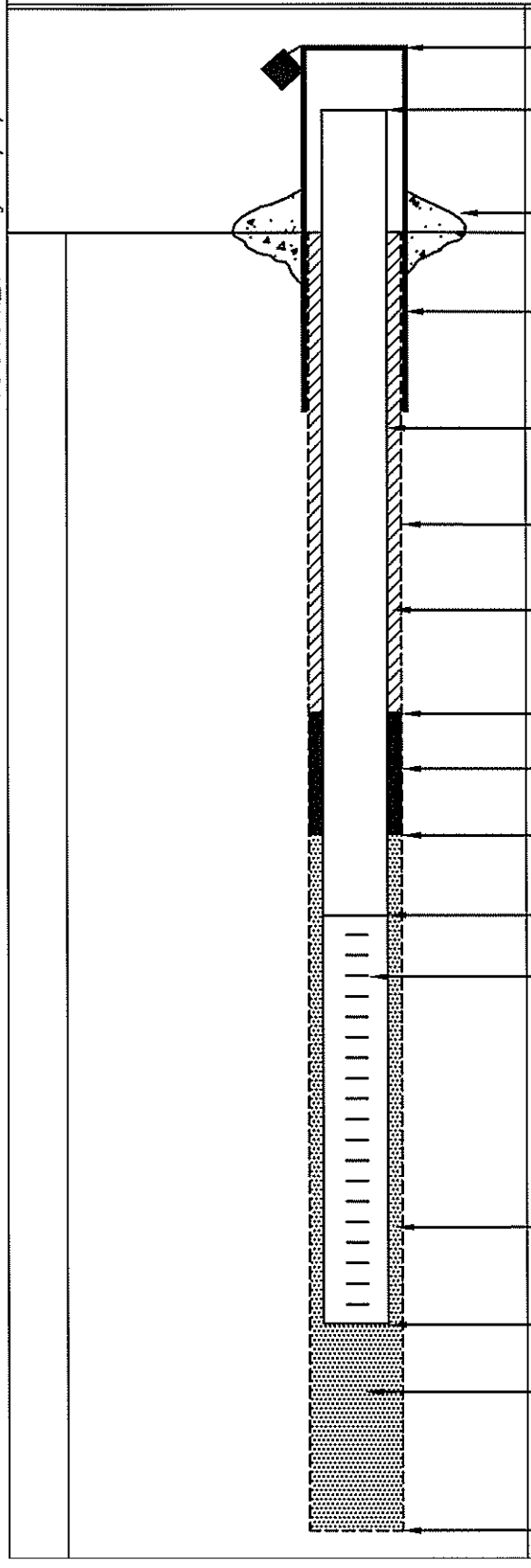
ACAD:FORM_MWSU.dwg 07/20/99 INL

WELL NO.: FT-PZ459I

Tetra Tech NUS, Inc.

OVERBURDEN MONITORING WELL SHEET STICK-UP

PROJECT NWIRP Calverton	LOCATION West of (N-S) River Rd	DRILLER Lukas Reiss
PROJECT NO. 112G02750	BORING FT-PZ459I	DRILLING METHOD DPT
DATE BEGUN 11-18-11	DATE COMPLETED 11-18-11	
FIELD GEOLOGIST J. Birkett		DEVELOPMENT METHOD Check Valve
GROUND ELEVATION	DATUM	



ELEVATION/HEIGHT OF TOP OF SURFACE CASING: /3¼"

ELEVATION/HEIGHT OF TOP OF RISER PIPE: /3'

TYPE OF SURFACE SEAL: Concret

I.D. OF SURFACE CASING: 3½"

TYPE OF SURFACE CASING: Steel protective casing (round)

JB 11-18-11

RISER PIPE I.D.: ~~3½"~~ 1"

TYPE OF RISER PIPE: ~~Steel protective casing (round)~~ Schedule 40 PVC

BOREHOLE DIAMETER: 3¼"

TYPE OF BACKFILL: Bentonite cement grout

ELEVATION/DEPTH TOP OF SEAL: /34'

TYPE OF SEAL: Coated Bentonite Pellets (Hydrated)

DEPTH TOP OF SAND PACK: 38'

ELEVATION/DEPTH TOP OF SCREEN: /41'

TYPE OF SCREEN: Prepacked Schedule 40 PVC

SLOT SIZE x LENGTH: 0.010" x 5'

I.D. OF SCREEN: 1"

TYPE OF SAND PACK: #1 Silica Sand

ELEVATION/DEPTH BOTTOM OF SCREEN: /46'

ELEVATION/DEPTH BOTTOM OF SAND PACK: /46'

BACKFILL MATERIAL BELOW SAND: NA

ELEVATION/DEPTH OF HOLE: /46'

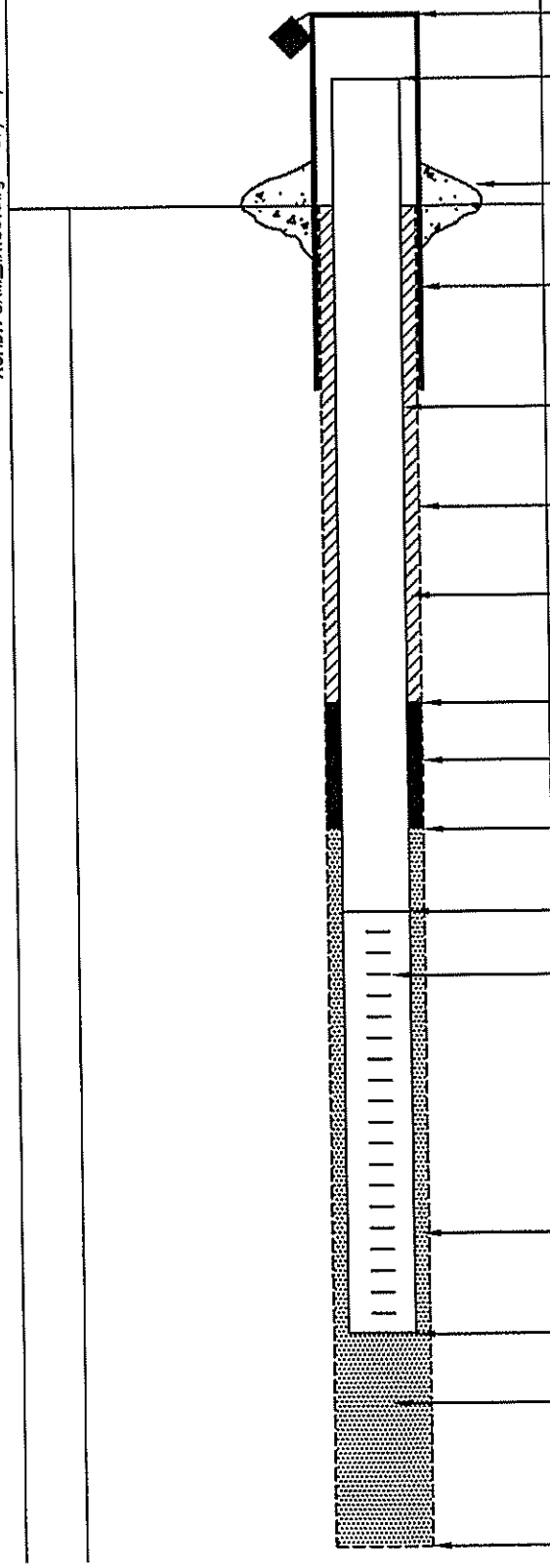
ACAD: FORM_MWSU.dwg 07/20/99 INL

WELL NO.: FT-PZ460I

Tetra Tech NUS, Inc.

OVERBURDEN MONITORING WELL SHEET STICK-UP

PROJECT NWIRP Calverton	LOCATION FT-PZ460	DRILLER L. Reiss
PROJECT NO. 112G02750	BORING FT-PZ460	DRILLING METHOD DPT
DATE BEGUN 12-1-11	DATE COMPLETED	
FIELD GEOLOGIST J. Birkett		DEVELOPMENT METHOD Check Valve
GROUND ELEVATION	DATUM	



ELEVATION/HEIGHT OF TOP OF SURFACE CASING: 13'

ELEVATION/HEIGHT OF TOP OF RISER PIPE: 12.75'

TYPE OF SURFACE SEAL: Concrete

I.D. OF SURFACE CASING: 3 1/2"
TYPE OF SURFACE CASING: Protective Steel Casing (Round)

RISER PIPE I.D.: 1"
TYPE OF RISER PIPE: Schedule 40 PVC

BOREHOLE DIAMETER: 3 1/2"

TYPE OF BACKFILL: Cement Bentonite grout

ELEVATION/DEPTH TOP OF SEAL: 34'

TYPE OF SEAL: Coated Bentonite pellets

DEPTH TOP OF SAND PACK: 38'

ELEVATION/DEPTH TOP OF SCREEN: 45'

TYPE OF SCREEN: Prepacked Schedule 40 PVC (2.4" OD)

SLOT SIZE x LENGTH: 0.010" x 5'

I.D. OF SCREEN: 1"

TYPE OF SAND PACK: #1 Silica Sand
(Add sand on top prepack (2.4" OD)
Not in screen interval

ELEVATION/DEPTH BOTTOM OF SCREEN: 50'

ELEVATION/DEPTH BOTTOM OF SAND PACK: 50'
BACKFILL MATERIAL BELOW SAND: NA

ELEVATION/DEPTH OF HOLE: 50'

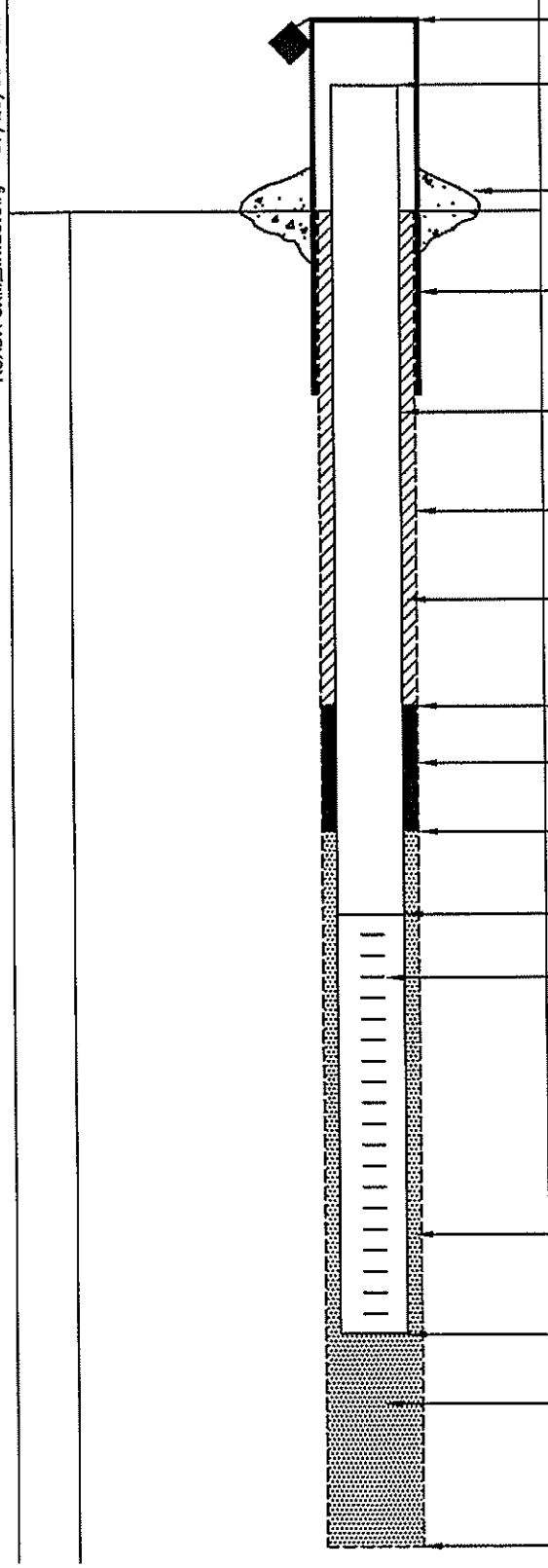
ACAD:FORM_MWSU.dwg 07/20/99 INL

WELL NO.: FT-PZ461I

Tetra Tech NUS, Inc.

OVERBURDEN MONITORING WELL SHEET STICK-UP

PROJECT NWIRP Calverton	LOCATION FT-PZ461	DRILLER L. Reiss
PROJECT NO. 112G02750	BORING FT-PZ461	DRILLING METHOD DPT
DATE BEGUN 11-30-11	DATE COMPLETED 11-30-11	
FIELD GEOLOGIST J. Birkett		DEVELOPMENT METHOD Check Valve
GROUND ELEVATION	DATUM	



ELEVATION/HEIGHT OF TOP OF SURFACE CASING: 13.25

ELEVATION/HEIGHT OF TOP OF RISER PIPE: 13

TYPE OF SURFACE SEAL: Concrete

I.D. OF SURFACE CASING: 3 1/2"
TYPE OF SURFACE CASING: Protective Steel Casing (Round)

RISER PIPE I.D.: 1"
TYPE OF RISER PIPE: Schedule 40 PVC

BOREHOLE DIAMETER: 3 1/4"

TYPE OF BACKFILL: Cement Bentonite grout

ELEVATION/DEPTH TOP OF SEAL: 43'

TYPE OF SEAL: Coated Bentonite pellets

DEPTH TOP OF SAND PACK: 49'

ELEVATION/DEPTH TOP OF SCREEN: 45' JB 11-30-11
54'

TYPE OF SCREEN: Prepacked Schedule 40 PVC (2.4" OD w/ Sand)

SLOT SIZE x LENGTH: 0.010" x 5'

I.D. OF SCREEN: 1" PVC

TYPE OF SAND PACK: #1 Silica Sand

ELEVATION/DEPTH BOTTOM OF SCREEN: 59'

ELEVATION/DEPTH BOTTOM OF SAND PACK: 59'
BACKFILL MATERIAL BELOW SAND: Natural Collapse

ELEVATION/DEPTH OF HOLE: 60'

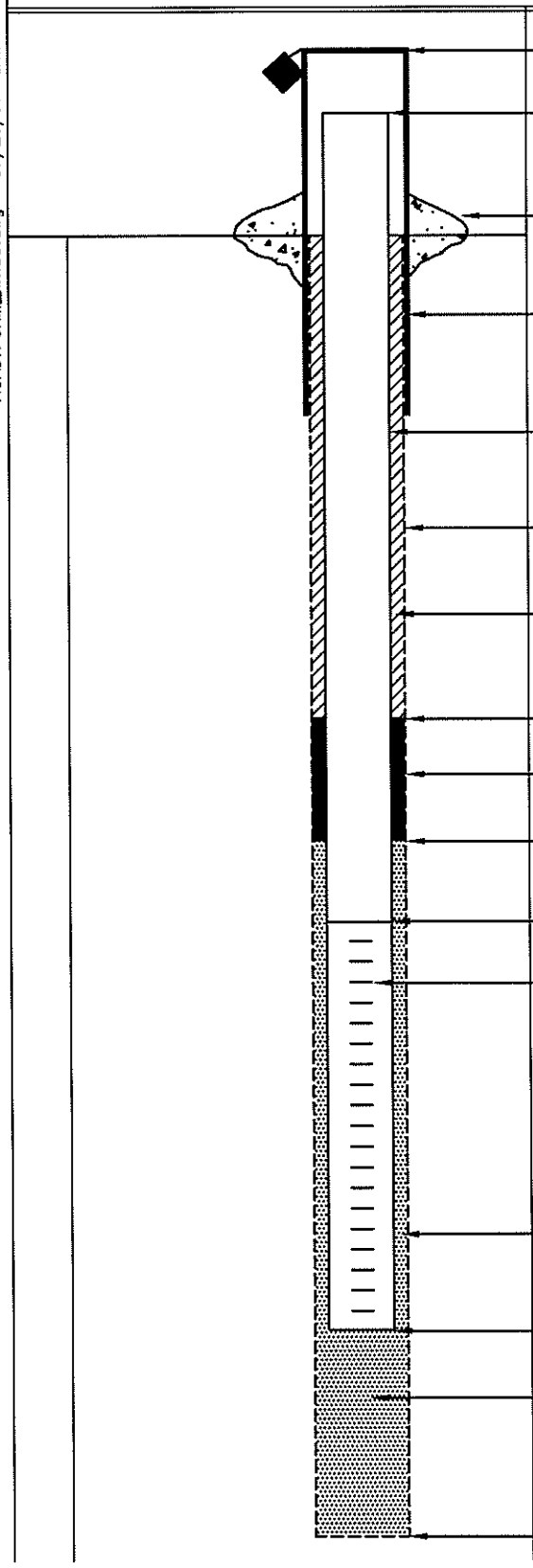
ACAD: FORM_MWSU.dwg 07/20/99 INL

WELL NO.: FT-PZ462S

Tetra Tech NUS, Inc.

OVERBURDEN MONITORING WELL SHEET STICK-UP

PROJECT NWIRP Calverton	LOCATION FT-PZ462	DRILLER J. Diamond
PROJECT NO. 112G02750	BORING FT-PZ462S	DRILLING METHOD DPT
DATE BEGUN 12-7-11	DATE COMPLETED 12-7-11	
FIELD GEOLOGIST J. Birkett		DEVELOPMENT METHOD Check Value
GROUND ELEVATION	DATUM	



ELEVATION/HEIGHT OF TOP OF SURFACE CASING: /2.75'

ELEVATION/HEIGHT OF TOP OF RISER PIPE: /2.5'

TYPE OF SURFACE SEAL: Concrete

I.D. OF SURFACE CASING: 3 1/2"
TYPE OF SURFACE CASING: Protective Steel Casing (Round)

RISER PIPE I.D.: 1"
TYPE OF RISER PIPE: Schedule 40 PVC

BOREHOLE DIAMETER: 3 1/4"

TYPE OF BACKFILL: NA

ELEVATION/DEPTH TOP OF SEAL: /1'

TYPE OF SEAL: Bentonite granules (hydrated

DEPTH TOP OF SAND PACK: 2'

ELEVATION/DEPTH TOP OF SCREEN: /3'

TYPE OF SCREEN: Prepacked (2.4" OD) Schedule 40 PVC

SLOT SIZE x LENGTH: 0.010" x 10'

I.D. OF SCREEN: 1"

TYPE OF SAND PACK: #1 Silica Sand

ELEVATION/DEPTH BOTTOM OF SCREEN: /13'

ELEVATION/DEPTH BOTTOM OF SAND PACK: /13'
BACKFILL MATERIAL BELOW SAND: NA

ELEVATION/DEPTH OF HOLE: /13'

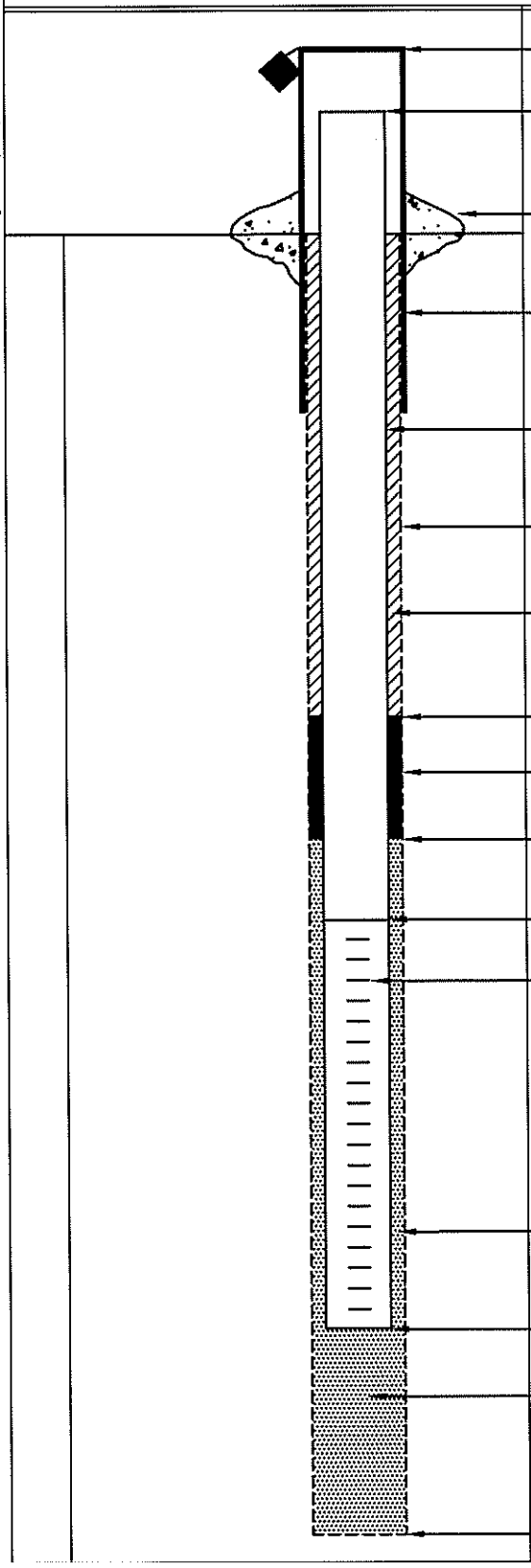
ACAD: FORM_MWSU.dwg 07/20/99 INL

WELL NO.: FT-PZ462I

Tetra Tech NUS, Inc.

OVERBURDEN MONITORING WELL SHEET STICK-UP

PROJECT NWIRP Calverton	LOCATION FT-PZ462	DRILLER J. Diamond
PROJECT NO. 112602750	BORING FT-PZ462I	DRILLING METHOD DPT
DATE BEGUN 12-7-11	DATE COMPLETED 12-7-11	
FIELD GEOLOGIST J. Birkett		DEVELOPMENT METHOD Check Valve
GROUND ELEVATION	DATUM	



ELEVATION/HEIGHT OF TOP OF SURFACE CASING: /3

ELEVATION/HEIGHT OF TOP OF RISER PIPE: /2.75

TYPE OF SURFACE SEAL: Concrete

I.D. OF SURFACE CASING: 3 1/2"
TYPE OF SURFACE CASING: Protective Steel Casing (Round)

RISER PIPE I.D.: 1"
TYPE OF RISER PIPE: Schedule 40 PVC

BOREHOLE DIAMETER: 3 1/4"

TYPE OF BACKFILL: Cement Bentonite grout

ELEVATION/DEPTH TOP OF SEAL: /35'

TYPE OF SEAL: Coated Bentonite pellets

DEPTH TOP OF SAND PACK: 40'

ELEVATION/DEPTH TOP OF SCREEN: /44'

TYPE OF SCREEN: Prepacked Schedule 40 PVC (2.4" OD)

SLOT SIZE x LENGTH: 0.010" x 5'

I.D. OF SCREEN: 1"

TYPE OF SAND PACK: #1 Silica Sand

ELEVATION/DEPTH BOTTOM OF SCREEN: /49

ELEVATION/DEPTH BOTTOM OF SAND PACK: /49

BACKFILL MATERIAL BELOW SAND: Natural Collapse

ELEVATION/DEPTH OF HOLE: /50

ACAD:FORM_MWSU.dwg 07/20/99 INL

APPENDIX D

CHAIN OF CUSTODY FORMS

CHAIN OF CUSTODY FORMS – MONITORING WELLS

INCLUDED IN DATA SUMMARY REPORT FOR 2011 GROUNDWATER INVESTIGATION ACTIVITIES

C1833

TETRA TECH NUS, INC. | **CHAIN OF CUSTODY** | **NUMBER** 2699 | **PAGE** 1 **OF** 1

PROJECT NO:	FACILITY:	PROJECT MANAGER	PHONE NUMBER	LABORATORY NAME AND CONTACT:
112G02750	NWIRP Colverton	Dave Brayack	(757) 461-3824	CHEMTECH
SAMPLERS (SIGNATURE)		FIELD OPERATIONS LEADER	PHONE NUMBER	ADDRESS
[signature]		Vince Shickora	(610) 909-1893	284 Sheffield Street
		CARRIER/WAYBILL NUMBER		CITY, STATE
		FEDEX # 8706 9629 3563		Mountainside, NJ 07092

STANDARD TAT ☐
RUSH TAT ☐
☐ 24 hr. ☐ 48 hr. ☐ 72 hr. ☐ 7 day ☐ 14 day

CONTAINER TYPE PLASTIC (P) or GLASS (G): G
PRESERVATIVE USED: HCl
TYPE OF ANALYSIS: VOCs

	DATE YEAR 2011	TIME	SAMPLE ID	LOCATION ID	TOP DEPTH (FT)	BOTTOM DEPTH (FT)	MATRIX (GW, SO, SW, SD, QC, ETC.)	COLLECTION METHOD GRAP (G) COMP (C)	No. OF CONTAINERS	VOCs	COMMENTS
1.	4/8	0800	FT-TB01-20110408	–	–	–	QC	G	2	2	Trip Blank
	~~4/8~~	~~1020~~	~~FT-GW423-2125~~	VAS							
2.	4/8	1020	FT-GW423-2125	–	21'	25'	GW	G	2	2	
3.	4/8	1050	FT-GW423-3135	–	31'	35'	GW	G	2	2	
4.	4/8	1115	FT-GW423-4145	–	41'	45'	GW	G	2	2	
5.	4/8	1246	FT-GW423-5155	–	51'	55'	GW	G	2	2	

	DATE	TIME		DATE	TIME
1. RELINQUISHED BY [signature]	4-11-11	1730	1. RECEIVED BY		
2. RELINQUISHED BY Fed Ex	4/12/11	9:15	2. RECEIVED BY Ken Rivera	4/12/11	9:15
3. RELINQUISHED BY			3. RECEIVED BY		

COMMENTS: Temp: 6 °C

DISTRIBUTION: WHITE (ACCOMPANIES SAMPLE) YELLOW (FIELD COPY) PINK (FILE COPY)

4/02R
FORM NO. TtNUS-001

CHEMTECH
CHAIN OF CUSTODY RECORD

284 Sheffield Street, Mountainside, NJ 07092
(908) 789-8900 Fax (908) 789-8922
www.chemtech.net

CHEMTECH PROJECT NO. ~~C2635~~
QUOTE NO. 6/17/11
COC Number 082924 C2735

CLIENT INFORMATION (REPORT TO BE SENT TO)

COMPANY: Tetra Tech NUS
ADDRESS: 5700 Lake Wright Drive
CITY: Norfolk STATE: VA ZIP: 23502
ATTENTION: Dave Brayack
PHONE: (757) 461-3824 FAX:

CLIENT PROJECT INFORMATION

PROJECT NAME: NWIRP Colverton
PROJECT NO.: WE08 LOCATION: Site 2
PROJECT MANAGER: Dave Brayack
e-mail:
PHONE: (757) 461-3824 FAX:

CLIENT BILLING INFORMATION

BILL TO: PO#:
ADDRESS:
CITY: STATE: ZIP:
ATTENTION: PHONE:

DATA TURNAROUND INFORMATION

FAX: _____ DAYS *
HARD COPY: _____ DAYS *
EDD: _____ DAYS *
PREAPPROVED TAT: ☐ YES ☐ NO
STANDARD TURNAROUND TIME IS 10 BUSINESS DAYS

DATA DELIVERABLE INFORMATION

☐ RESULTS ONLY ☐ USEPA CLP
☐ RESULTS + QC ☐ New York State ASP "B"
☐ New Jersey REDUCED ☐ New York State ASP "A"
☐ New Jersey CLP ☐ Other _____
☐ EDD FORMAT _____

ANALYSIS: VOCs

PRESERVATIVES: HCl

CHEMTECH SAMPLE ID	PROJECT SAMPLE IDENTIFICATION	SAMPLE MATRIX	SAMPLE TYPE COMP	SAMPLE TYPE GRAB	SAMPLE COLLECTION DATE	SAMPLE COLLECTION TIME	# OF BOTTLES	1	2	3	4	5	6	7	8	9	COMMENTS
1.	FT-TB01-20110613	QC		X	6/13/11	0700	2	2									Lab supplied Trip Blank
2.	FT-GW427-2125	Aq		X	6/13/11	1010	2	2									
3.	FT-GW427-3135	Aq		X	6/13/11	1040	2	2									
4.	FT-GW427-4145	Aq		X	6/13/11	1105	2	2									
5.	FT-RB01-20110613	QC		X	6/13/11	1130	2	2									Rinsate
6.	FT-GW427-5155	Aq		X	6/13/11	1220	2	2									
7.	FT-GW427-6165	Aq		X	6/13/11	1245	2	2									
8.	FT-GW426-2125	Aq		X	6/13/11	1403	2	2									
9.	FT-GW426-3135	Aq		X	6/13/11	1430	2	2									
10.	FT-GW426-4145	Aq		X	6/13/11	1455	2	2									

Specify Preservatives: A – HCl B – HNO_3 C – H_2SO_4 D – NaOH E – ICE F – Other

SAMPLE CUSTODY MUST BE DOCUMENTED BELOW EACH TIME SAMPLES CHANGE POSSESSION INCLUDING COURIER DELIVERY

RELINQUISHED BY SAMPLER	DATE/TIME	RECEIVED BY:
1. [signature]	6-15-11 1400	1.
RELINQUISHED BY: 2.	DATE/TIME:	RECEIVED BY: 2.
RELINQUISHED BY: 3. FedEx	DATE/TIME: 6-17-11 930	RECEIVED FOR LAB BY: 3. [signature]

Conditions of bottles or coolers at receipt: ☑ Compliant ☐ Non Compliant
Cooler Temp. 5°C
Ice in Cooler?:
MeOH extraction requires an additional 4 oz jar for percent solid.
Comments:

Page 1 of 4

SHIPPED VIA: CLIENT: ☐ HAND DELIVERED ☑ OVERNIGHT
CHEMTECH: ☑ PICKED UP ☐ OVERNIGHT
Shipment Complete: ☑ YES ☐ NO

6/17/11

Revision 8/2007

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CHEMTECH
CHAIN OF CUSTODY RECORD

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www.chemtech.net

CHEMTECH PROJECT NO. ~~C2635~~
QUOTE NO. 6/17/11
COC Number 082925 C2735

CLIENT INFORMATION (REPORT TO BE SENT TO)

COMPANY: Tetra Tech NUS
ADDRESS: 5700 Lake Wright Drive
CITY: Norfolk STATE: VA ZIP: 23502
ATTENTION: Dave Brayack
PHONE (757) 461-3824 FAX:

CLIENT PROJECT INFORMATION

PROJECT NAME: NWIRP Calverton
PROJECT NO.: WE08 LOCATION: Site 2
PROJECT MANAGER: Dave Brayack
e-mail:
PHONE (757) 461-3824 FAX:

CLIENT BILLING INFORMATION

BILL TO: PO#:
ADDRESS:
CITY: STATE: ZIP:
ATTENTION: PHONE:

DATA TURNAROUND INFORMATION

FAX: _____ DAYS *
HARD COPY: _____ DAYS *
EDD: _____ DAYS *
PREAPPROVED TAT: ☐ YES ☐ NO
STANDARD TURNAROUND TIME IS 10 BUSINESS DAYS

DATA DELIVERABLE INFORMATION

☐ RESULTS ONLY ☐ USEPA CLP
☐ RESULTS + QC ☐ New York State ASP "B"
☐ New Jersey REDUCED ☐ New York State ASP "A"
☐ New Jersey CLP ☐ Other _____
☐ EDD FORMAT _____

ANALYSIS

CHEMTECH SAMPLE	PROJECT SAMPLE IDENTIFICATION	SAMPLE MATRIX	SAMPLE TYPE COMP	SAMPLE TYPE GRAB	SAMPLE COLLECTION DATE	SAMPLE COLLECTION TIME	# OF BOTTLES	VOLS / PRESERVATIVES HCl 1	2	3	4	5	6	7	8	9	COMMENTS (← Specify Preservatives A-HCl B-HNO3 C-H2SO4 D-NaOH E-ICE F-Other)
11.	FT-DUP01-20110613	Aq		X	6/13/11	1800	2	2									
12., 13, 14.	FT-GW426-5155	Aq		X	6/13/11	1550	6	6									Do MS/MSD
15.	FT-GW426-6165	Aq		X	6/13/11	1615	2	2									
16.	FT-SB01-20110614	~~Aq~~		X	6/14/11	0810	2	2									Source Blank
17.	FT-GW425-2125	Aq		X	6/14/11	0940	2	2									
18.	FT-GW425-3135	Aq		X	6/14/11	1005	2	2									
19.	FT-GW425-4145	Aq		X	6/14/11	1030	2	2									
20.	FT-GW425-5155	Aq		X	6/14/11	1140	2	2									
21.	FT-GW425-6165	Aq		X	6/14/11	1205	2	2									
22.	FT-GW424-2125	Aq		X	6/15/11	0905	2	2									

SAMPLE CUSTODY MUST BE DOCUMENTED BELOW EACH TIME SAMPLES CHANGE POSSESSION INCLUDING COURIER DELIVERY

RELINQUISHED BY SAMPLER	DATE/TIME	RECEIVED BY
1. [signature]	6-15-11 1400	1.
RELINQUISHED BY 2.	DATE/TIME	RECEIVED BY 2.
RELINQUISHED BY 3. FedEx	DATE/TIME 6-17-11 930	RECEIVED FOR LAB BY 3. [signature]

Conditions of bottles or coolers at receipt: ☒ Compliant ☐ Non Compliant
MeOH extraction requires an additional 4 oz jar for percent solid.
Comments:

Cooler Temp. 5°C
Ice in Cooler?: ✓

Page 2 of 4

SHIPPED VIA: CLIENT: ☐ HAND DELIVERED ☒ OVERNIGHT
CHEMTECH: ☐ PICKED UP ☐ OVERNIGHT

Shipment Complete: ☒ YES ☐ NO

Revision 8/2007

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CHEMTECH
CHAIN OF CUSTODY RECORD

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CHEMTECH PROJECT NO.
QUOTE NO. C2736
COC Number 082926

CLIENT INFORMATION (REPORT TO BE SENT TO:)
COMPANY: Tetra Tech NUS
ADDRESS: 5700 Lake Wright Drive
CITY: Norfolk STATE: VA ZIP: 23502
ATTENTION: Dave Brayack
PHONE: (757) 461-3824 FAX:

CLIENT PROJECT INFORMATION
PROJECT NAME: NWIRP Calverton
PROJECT NO.: WE08 LOCATION: Site 2
PROJECT MANAGER: Dave Brayack
e-mail:
PHONE: (757) 461-3824 FAX:

CLIENT BILLING INFORMATION
BILL TO: PO#:
ADDRESS:
CITY: STATE: ZIP:
ATTENTION: PHONE:

DATA TURNAROUND INFORMATION
FAX: DAYS *
HARD COPY: DAYS *
EDD: DAYS *
PREAPPROVED TAT: ☐ YES ☐ NO
STANDARD TURNAROUND TIME IS 10 BUSINESS DAYS

DATA DELIVERABLE INFORMATION
☐ RESULTS ONLY ☐ USEPA CLP
☐ RESULTS + QC ☐ New York State ASP "B"
☐ New Jersey REDUCED ☐ New York State ASP "A"
☐ New Jersey CLP ☐ Other
☐ EDD FORMAT

ANALYSIS

CHEMTECH SAMPLE ID	PROJECT SAMPLE IDENTIFICATION	SAMPLE MATRIX	SAMPLE TYPE COMP	SAMPLE TYPE GRAB	SAMPLE COLLECTION DATE	SAMPLE COLLECTION TIME	# OF BOTTLES	VOCs 1 (HCl)	2	3	4	5	6	7	8	9	COMMENTS
1.	FT-GW424-3135	Aq		X	6/15/11	0930	2	2									
2.	FT-DUP02-20110615	Aq		X	6/15/11	1800	2	2									
3.	FT-GW424-4145	Aq		X	6/15/11	0955	2	2									
4.	FT-GW424-5155	Aq		X	6/15/11	1105	2	2									
5.	FT-GW424-6165	Aq		X	6/15/11	1130	2	2									
6.	FT-GW423-6165	Aq		X	6/15/11	1235	2	2									
7.	FT-GW422-2125	Aq		X	6/15/11	1345	6	6									Do MS/MSD
8.	FT-GW422-3135	Aq		X	6/15/11	1410	2	2									
9.	FT-GW422-4145	Aq		X	6/15/11	1435	2	2									
10.	FT-GW422-5155	Aq		X	6/15/11	1540	2	2									

PRESERVATIVES

COMMENTS — ← Specify Preservatives
A – HCl B – HNO_3
C – H_2SO_4 D – NaOH
E – ICE F – Other

SAMPLE CUSTODY MUST BE DOCUMENTED BELOW EACH TIME SAMPLES CHANGE POSSESSION INCLUDING COURIER DELIVERY

RELINQUISHED BY SAMPLER:	DATE/TIME:	RECEIVED BY:
1. [signature]	6-16-11 1400	1.
RELINQUISHED BY: 2.	DATE/TIME:	RECEIVED BY: 2.
RELINQUISHED BY 3. FEDEX	DATE/TIME: 6-17-11 930	RECEIVED FOR LAB BY: 3. [signature]

Conditions of bottles or coolers at receipt: ☐ Compliant ☐ Non Compliant
Cooler Temp. 5°C
MeOH extraction requires an additional 4 oz jar for percent solid.
Comments:
Ice in Cooler?:

Page 3 of 4

SHIPPED VIA: CLIENT: ☐ HAND DELIVERED ☐ OVERNIGHT
CHEMTECH: ☐ PICKED UP ☐ OVERNIGHT

Shipment Complete: ☐ YES ☐ NO

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CHEMTECH
CHAIN OF CUSTODY RECORD

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(908) 789-8900 Fax (908) 789-8922
www.chemtech.net

CHEMTECH PROJECT NO.
QUOTE NO. C2736
COC Number 082927

CLIENT INFORMATION (REPORT TO BE SENT TO.)

COMPANY: Tetra Tech NUS
ADDRESS: 5700 Lake Wright Drive
CITY: Norfolk STATE: VA ZIP: 23502
ATTENTION: Dave Brayack
PHONE (757) 461-3824 FAX:

CLIENT PROJECT INFORMATION

PROJECT NAME: NWIRP Calverton
PROJECT NO.: WE08 LOCATION: Site 2
PROJECT MANAGER: Dave Brayack
e-mail:
PHONE: (757) 461-3824 FAX:

CLIENT BILLING INFORMATION

BILL TO: PO#:
ADDRESS:
CITY: STATE: ZIP:
ATTENTION: PHONE:

DATA TURNAROUND INFORMATION

FAX: _____ DAYS *
HARD COPY: _____ DAYS *
EDD: _____ DAYS *
PREAPPROVED TAT: ☐ YES ☐ NO
STANDARD TURNAROUND TIME IS 10 BUSINESS DAYS

DATA DELIVERABLE INFORMATION

☐ RESULTS ONLY ☐ USEPA CLP
☐ RESULTS + QC ☐ New York State ASP "B"
☐ New Jersey REDUCED ☐ New York State ASP "A"
☐ New Jersey CLP ☐ Other _____
☐ EDD FORMAT _____

ANALYSIS

VOCs

PRESERVATIVES

← Specify Preservatives
A – HCl B – HNO_3
C – H_2SO_4 D – NaOH
E – ICE F – Other

CHEMTECH SAMPLE ID	PROJECT SAMPLE IDENTIFICATION	SAMPLE MATRIX	SAMPLE TYPE COMP	SAMPLE TYPE GRAB	SAMPLE COLLECTION DATE	SAMPLE COLLECTION TIME	# OF BOTTLES	1 (HCl)	2	3	4	5	6	7	8	9	COMMENTS
1.	FT-DUP03-20110615	Aq		X	6/15/11	1830	2	2									
2.	FT-GW422-6165	Aq		X	6/15/11	1610	2	2									
3.	FT-GW421-2125	Aq		X	6/16/11	0940	2	2									
4.	FT-GW421-3135	Aq		X	6/16/11	1005	2	2									
5.	FT-GW421-4145	Aq		X	6/16/11	1030	2	2									
6.	FT-GW421-5155	Aq		X	6/16/11	1140	2	2									
7.	FT-GW421-6165	Aq		X	6/16/11	1205	2	2									
8.																	
9.																	
10.																	

SAMPLE CUSTODY MUST BE DOCUMENTED BELOW EACH TIME SAMPLES CHANGE POSSESSION INCLUDING COURIER DELIVERY

RELINQUISHED BY SAMPLER.	DATE/TIME:	RECEIVED BY:
1. [signature]	6-15-11 1450	1.
RELINQUISHED BY.	DATE/TIME:	RECEIVED BY:
2.		2.
RELINQUISHED BY:	DATE/TIME:	RECEIVED FOR LAB BY:
3. FedEx	6-17-11 930	3. [signature]

Conditions of bottles or coolers at receipt: ☐ Compliant ☐ Non Compliant
MeOH extraction requires an additional 4 oz jar for percent solid.
Comments:

Cooler Temp. 5°C
Ice in Cooler?: /

Page 4 of 4

SHIPPED VIA: CLIENT: ☐ HAND DELIVERED ☐ OVERNIGHT
CHEMTECH: ☐ PICKED UP ☐ OVERNIGHT

Shipment Complete: ☐ YES ☐ NO

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C4/95

TETRA TECH NUS, INC. CHAIN OF CUSTODY | NUMBER | PAGE 1 OF 2

PROJECT NO: 112G02750	SITE NAME: NWIRP Calverton	PROJECT MANAGER AND PHONE NUMBER: Dave Brayack 757-461-3824	LABORATORY NAME AND CONTACT: Chemtech Kurt Hummler 908-728-3143
SAMPLERS (SIGNATURE): Jacob Birkett		FIELD OPERATIONS LEADER AND PHONE NUMBER: Jacob Birkett 757-814-9916	ADDRESS: 284 Sheffield St.
		CARRIER/WAYBILL NUMBER: FedEx 8741-9938-1313	CITY, STATE: Mountainside, NJ 07092

STANDARD TAT ☒
RUSH TAT ☐
☐ 24 hr. ☐ 48 hr. ☐ 72 hr. ☐ 7 day ☐ 14 day

CONTAINER TYPE PLASTIC (P) or GLASS (G): G
PRESERVATIVE USED: HCl

DATE YEAR 2011	TIME	SAMPLE ID	MATRIX	GRAB (G) COMP (C)	No. OF CONTAINERS	TYPE OF ANALYSIS: VOC							COMMENTS
10-07	1130	FT-TB01-20111007	QC	—	2	2							Lab prepared
10-13	1000	FT-GW428-7175	GW	G	2	2							
10-13	1027	FT-GW428-6165	GW	G	2	2							
10-13	1055	FT-GW428-5155	GW	G	2	2							
10-13	1235	FT-GW428-4145	GW	G	2	2							
10-13	1303	FT-GW428-3135	GW	G	6 ~~2~~ 6 ~~2~~								Run MSMSD
10-13	1333	FT-GW428-2125	GW	G	2	2							
10-13	1544	FT-GW429-7175	GW	G	2	2							
10-13	1616	FT-GW429-6165	GW	G	2	2							
10-13	1644	FT-GW429-5155	GW	G	2	2							temp: 5°C
10-13	1100	FT-Dup01-20111013	GW	G	2	2							
10-14	0800	FT-FB01-20111014	QC	—	2	2							Source water blank - store bought Distilled
10-14	0810	FT-RB01-20111014	QC	—	2	2							Rinsate Blank

1. RELINQUISHED BY: Jacob Birkett	DATE: 10-14-11	TIME: 1400	1. RECEIVED BY	DATE	TIME
2. RELINQUISHED BY	DATE	TIME	2. RECEIVED BY	DATE	TIME
3. RELINQUISHED BY: FED-EX	DATE: 10/15/11	TIME: 10:40	3. RECEIVED BY: Suchal Mehta	DATE: 10/15/11	TIME: 10:40

COMMENTS

DISTRIBUTION: WHITE (ACCOMPANIES SAMPLE) YELLOW (FIELD COPY) PINK (FILE COPY)

3/99
FORM NO. TtNUS-001

C4195

TETRA TECH NUS, INC.

CHAIN OF CUSTODY | NUMBER

PROJECT NO: 112G02750

SITE NAME: Calverton

SAMPLERS (SIGNATURE): [signature]

PROJECT MANAGER AND PHONE NUMBER: Dave Brayack 757-461-3824

FIELD OPERATIONS LEADER AND PHONE NUMBER: Jacob Birkett 757-814-9916

CARRIER/WAYBILL NUMBER: FedEx 8741-9938 -1313

LABORATORY NAME AND CONTACT: Chemtech Kurt Hummler 908-728-3143

ADDRESS: 284 Sheffield St.

CITY, STATE: Mountainside, NJ 07092

STANDARD TAT ☒
RUSH TAT ☐
☐ 24 hr. ☐ 48 hr. ☐ 72 hr. ☐ 7 day ☐ 14 day

CONTAINER TYPE PLASTIC (P) or GLASS (G): G

PRESERVATIVE USED: HCl

TYPE OF ANALYSIS: VOC

DATE YEAR 2011	TIME	SAMPLE ID	MATRIX	GRAB (G) COMP (C)	No. OF CONTAINERS	VOC							COMMENTS
10-14	0953	FT-GW429-4145	GW	G	2	2							
10-14	1020	FT-GW429-3135	GW	G	2	2							
10-14	1053	FT-GW429-2125	GW	G	2	2							
10-14	0830	FT-Dup02-20111014	GW	G	2	2							

JBB 10-14-11

1. RELINQUISHED BY Jacob Birkett [signature]	DATE 10-14-11	TIME 1400	1. RECEIVED BY	DATE	TIME
2. RELINQUISHED BY	DATE	TIME	2. RECEIVED BY	DATE	TIME
3. RELINQUISHED BY [signature]	DATE 10/15/11	TIME 10:40	3. RECEIVED BY [signature]	DATE 10/15/11	TIME 10:40

COMMENTS

DISTRIBUTION: WHITE (ACCOMPANIES SAMPLE) YELLOW (FIELD COPY) PINK (FILE COPY)

CHEMTECH
CHAIN OF CUSTODY RECORD

284 Sheffield Street, Mountainside, NJ 07092
(908) 789-8900 Fax (908) 789-8922
www.chemtech.net

CHEMTECH PROJECT NO. C4269
QUOTE NO.
COC Number 020095

CLIENT INFORMATION (REPORT TO BE SENT TO:)

COMPANY: Tetra Tech
ADDRESS: 5700 Lake Wright Dr suite 309
CITY: Norfolk STATE: VA ZIP: 23502
ATTENTION: David Brayack
PHONE 757-441-3768 FAX: 757-441-4148

CLIENT PROJECT INFORMATION

PROJECT NAME: Site 2
PROJECT NO.: 112602750 LOCATION: Calverton, NY
PROJECT MANAGER: David Brayack
e-mail: David.Brayack@tetratech.com
PHONE: FAX:

CLIENT BILLING INFORMATION

BILL TO: See PO - PO#:
ADDRESS:
CITY: STATE: ZIP:
ATTENTION: PHONE:

DATA TURNAROUND INFORMATION

FAX: _____ DAYS *
HARD COPY: _____ DAYS *
EDD: Standard DAYS *
PREAPPROVED TAT: ☐ YES ☐ NO
STANDARD TURNAROUND TIME IS 10 BUSINESS DAYS

DATA DELIVERABLE INFORMATION

☐ RESULTS ONLY ☐ USEPA CLP
☐ RESULTS + QC ☐ New York State ASP "B"
☐ New Jersey REDUCED ☐ New York State ASP "A"
☐ New Jersey CLP ☐ Other _____
☒ EDD FORMAT _____

ANALYSIS: VOC

PRESERVATIVES: A

CHEMTECH SAMPLE ID	PROJECT SAMPLE IDENTIFICATION	SAMPLE MATRIX	SAMPLE TYPE COMP	SAMPLE TYPE GRAB	SAMPLE COLLECTION DATE	SAMPLE COLLECTION TIME	# OF BOTTLES	1	2	3	4	5	6	7	8	9	COMMENTS
1.	FT-TB02-20111007	TB		X	10/07/11	1130	2	X									La prepared
2.	FT-GW430-7175	GW		X	10/17/11	1144	2	X									
3.	FT-GW430-6165	GW		X	10/17/11	1212	2	X									
4.	FT-GW430-5155	GW		X	10/17/11	1326	2	X									
5.	FT-GW430-4145	GW		X	10/17/11	1508	2	X									
6.	FT-GW430-3135	GW		X	10/17/11	1540	2	X									
7.	FT-GW430-2125	GW		X	10/17/11	1608	2	X									
8.	FT-MW035-20111018	GW		X	10/18/11	1040	2	X									
9.	FT-MW015-20111018	GW		X	10/18/11	1300	2	X									
10.	FT-MW01I-20111018	GW		X	10/18/11	1350	2	X									

Specify Preservatives: A-HCl B-HNO_3 C-H_2SO_4 D-NaOH E-ICE F-Other

SAMPLE CUSTODY MUST BE DOCUMENTED BELOW EACH TIME SAMPLES CHANGE POSSESSION INCLUDING COURIER DELIVERY

RELINQUISHED BY SAMPLER	DATE/TIME	RECEIVED BY
1. [signature]	10/19/11 1600	1.
RELINQUISHED BY	DATE/TIME	RECEIVED BY
2.		2.
RELINQUISHED BY	DATE/TIME	RECEIVED FOR LAB BY
3. FedEx	10/20/11 905	3. [signature]

Conditions of bottles or coolers at receipt: ☒ Compliant ☐ Non Compliant
Cooler Temp. 6°C
MeOH extraction requires an additional 4 oz jar for percent solid.
Comments:
Ice in Cooler?:

Page 1 of 3

SHIPPED VIA: CLIENT: ☐ HAND DELIVERED ☒ OVERNIGHT
CHEMTECH: ☐ PICKED UP ☐ OVERNIGHT

Shipment Complete: ☒ YES ☐ NO

Revision 8/2007

WHITE - CHEMTECH COPY FOR RETURN TO CLIENT YELLOW - CHEMTECH COPY PINK - SAMPLER COPY

CHEMTECH
CHAIN OF CUSTODY RECORD

284 Sheffield Street, Mountainside, NJ 07092
(908) 789-8900 Fax (908) 789-8922
www.chemtech.net

CHEMTECH PROJECT NO. / QUOTE NO. C4270
COC Number 020096

CLIENT INFORMATION

REPORT TO BE SENT TO:
COMPANY: Tetra Tech
ADDRESS: 5700 Lake Wright Dr. Suite 309
CITY: Norfolk STATE: VA ZIP: 23502
ATTENTION: David Brayack
PHONE: 757-461-3768 FAX: 757-461-4148

CLIENT PROJECT INFORMATION

PROJECT NAME: Site 2
PROJECT NO.: 112G02250 LOCATION: Galverton NY
PROJECT MANAGER: David Brayack
e-mail: David.Brayack@tetratech.com
PHONE: FAX:

CLIENT BILLING INFORMATION

BILL TO: PO#:
ADDRESS: See PO
CITY: STATE: ZIP:
ATTENTION: PHONE:

DATA TURNAROUND INFORMATION

FAX: DAYS *
HARD COPY: DAYS *
EDD: Standard DAYS *
PREAPPROVED TAT: ☐ YES ☐ NO
STANDARD TURNAROUND TIME IS 10 BUSINESS DAYS

DATA DELIVERABLE INFORMATION

☐ RESULTS ONLY ☐ USEPA CLP
☐ RESULTS + QC ☐ New York State ASP "B"
☐ New Jersey REDUCED ☐ New York State ASP "A"
☐ New Jersey CLP ☐ Other
☐ EDD FORMAT

ANALYSIS

1 VOC, 2 PAH, 3 PCB, 4 Metals, 5, 6, 7, 8, 9

PRESERVATIVES (none →)

COMMENTS — Specify Preservatives: A–HCl, B–HNO_3, C–H_2SO_4, D–NaOH, E–ICE, F–Other

CHEMTECH SAMPLE ID	PROJECT SAMPLE IDENTIFICATION	SAMPLE MATRIX	SAMPLE TYPE COMP	SAMPLE TYPE GRAB	SAMPLE COLLECTION DATE	SAMPLE COLLECTION TIME	# OF BOTTLES	1	2	3	4	5	6	7	8	9	COMMENTS
1.	FT-SB401-0608	SO		X	10/18/11	0852	2	X	X	X	X						
2.	FT-SB406-0406	SO		X	10/18/11	1005	2	X	X	X	X						
3.	FT-SB407-0608	SO		X	10/18/11	1205	4	X	X	X	X						MS/MSD
4.	FT-SB405-0204	SO		X	10/18/11	1326	1	X									
5.	FT-SB405-0608	SO		X	10/18/11	1342	1	X									
6.	FT-SB403-0608	SO		X	10/18/11	1455	2	X	X	X	X						
7.	FT-SB402-0608	SO		X	10/19/11	0757	2	X	X	X	X						
8.	FT-SB404-0305	SO		X	10/19/11	0908	1	X									
9.	FT-SB404-0608	SO		X	10/19/11	0915	1	X									
10.	FT-SBDUP01-20111018	SO		X	10/18/11	1000	2	X	X	X	X						

SAMPLE CUSTODY MUST BE DOCUMENTED BELOW EACH TIME SAMPLES CHANGE POSSESSION INCLUDING COURIER DELIVERY

RELINQUISHED BY SAMPLER:	DATE/TIME:	RECEIVED BY:
1. [signature]	10/19/11 1600	1.
RELINQUISHED BY:	DATE/TIME:	RECEIVED BY:
2.		2.
RELINQUISHED BY:	DATE/TIME:	RECEIVED FOR LAB BY:
3. FedEx	10-20-11 905	3. [signature]

Conditions of bottles or coolers at receipt: ☐ Compliant ☐ Non Compliant
MeOH extraction requires an additional 4 oz jar for percent solid.
Comments:

Cooler Temp. 6°C
Ice in Cooler?: ✓

Page 2 of 3

SHIPPED VIA: CLIENT: ☐ HAND DELIVERED ☐ OVERNIGHT
CHEMTECH: ☐ PICKED UP ☐ OVERNIGHT

Shipment Complete: ☐ YES ☐ NO

Revision 8/2007

WHITE - CHEMTECH COPY FOR RETURN TO CLIENT YELLOW - CHEMTECH COPY PINK - SAMPLER COPY

CHEMTECH
CHAIN OF CUSTODY RECORD

284 Sheffield Street, Mountainside, NJ 07092
(908) 789-8900 Fax (908) 789-8922
www.chemtech.net

CHEMTECH PROJECT NO. / QUOTE NO. C4270
COC Number 020098

CLIENT INFORMATION (REPORT TO BE SENT TO:)
COMPANY: Tetra Tech
ADDRESS: 5700 Lake Wright Dr. Suite 300
CITY: Norfolk STATE: VA ZIP: 23502
ATTENTION: Dave Brayack
PHONE: 757-461-3768 FAX: 757-461-4148

CLIENT PROJECT INFORMATION
PROJECT NAME: Calverton Site 2
PROJECT NO.: 112G02750 LOCATION:
PROJECT MANAGER: Dave Brayack
e-mail: David.Brayack@tetratech.com
PHONE: FAX:

CLIENT BILLING INFORMATION
BILL TO: PO#:
ADDRESS: See P.O
CITY: STATE: ZIP:
ATTENTION: PHONE:

DATA TURNAROUND INFORMATION
FAX: DAYS *
HARD COPY: DAYS *
EDD: Standard DAYS *
PREAPPROVED TAT: ☐ YES ☐ NO
STANDARD TURNAROUND TIME IS 10 BUSINESS DAYS

DATA DELIVERABLE INFORMATION
☐ RESULTS ONLY ☐ USEPA CLP
☐ RESULTS + QC ☐ New York State ASP "B"
☐ New Jersey REDUCED ☐ New York State ASP "A"
☐ New Jersey CLP ☐ Other
☐ EDD FORMAT

ANALYSIS: 1 VOCs, 2 PAHs, 3 PCBs, 4 Metals, 5, 6, 7, 8, 9

PRESERVATIVES: None →

COMMENTS: ← Specify Preservatives
A-HCl B-HNO_3 C-H_2SO_4 D-NaOH E-ICE F-Other

CHEMTECH SAMPLE ID	PROJECT SAMPLE IDENTIFICATION	SAMPLE MATRIX	SAMPLE TYPE COMP	SAMPLE TYPE GRAB	SAMPLE COLLECTION DATE	SAMPLE COLLECTION TIME	# OF BOTTLES	1	2	3	4	5	6	7	8	9	COMMENTS
1.	FT-SB410-1416	SO		X	10-19-11	1108	2	X	X								
2.	FT-SB413-0002	SO		X	10-19-11	1120	2	X	X	X	X						
3.	FT-SB413-0810	SO		X	10-19-11	1128	2	X	X	X							
4.	FT-SB412-0204	SO		X	10-19-11	1157	1		X								
5.	FT-SB412-1214	SO		X	10-19-11	1203	2	X	X	X							
6.	FT-SB411-0002	SO		X	10-19-11	1217	1		X	X							
7.	FT-SB408-1517	SO		X	10-19-11	1240	2	X	X								
8.	FT-SB409-1315	SO		X	10-19-11	1305	2	X	X								
9.	FT-SBDup02-20111019	SO		X	10-19-11	1200		X									
10.																	

SAMPLE CUSTODY MUST BE DOCUMENTED BELOW EACH TIME SAMPLES CHANGE POSSESSION INCLUDING COURIER DELIVERY

RELINQUISHED BY SAMPLER:	DATE/TIME:	RECEIVED BY:
1. [signature]	10-19-11 1600	1.
RELINQUISHED BY: 2.	DATE/TIME:	RECEIVED BY: 2.
RELINQUISHED BY: 3. FedEx	DATE/TIME: 10-20-11 905	RECEIVED FOR LAB BY: 3. [signature]

Conditions of bottles or coolers at receipt: ☐ Compliant ☐ Non Compliant
MeOH extraction requires an additional 4 oz jar for percent solid.
Comments:
Cooler Temp. C°C
Ice in Cooler?: ✓

Page 3 of 3

SHIPPED VIA: CLIENT: ☐ HAND DELIVERED ☐ OVERNIGHT
CHEMTECH: ☐ PICKED UP ☐ OVERNIGHT

Shipment Complete: ☐ YES ☐ NO

Revision 8/2007

WHITE - CHEMTECH COPY FOR RETURN TO CLIENT YELLOW - CHEMTECH COPY PINK - SAMPLER COPY

C4303

TETRA TECH NUS, INC. CHAIN OF CUSTODY | NUMBER | PAGE 1 OF 2

PROJECT NO:	SITE NAME:	PROJECT MANAGER AND PHONE NUMBER	LABORATORY NAME AND CONTACT:
112G02750	NWIRP Calverton Site 2	David Brayack 757-461-3824	Chemtech Kurt Hummler
SAMPLERS (SIGNATURE)		FIELD OPERATIONS LEADER AND PHONE NUMBER: Jacob Birkett 757-814-9916	ADDRESS: 284 Sheffield St.
		CARRIER/WAYBILL NUMBER: FedEx 8741-9938-0659	CITY, STATE: Mountainside, NJ 07092

STANDARD TAT ☒
RUSH TAT ☐
☐ 24 hr. ☐ 48 hr. ☐ 72 hr. ☐ 7 day ☐ 14 day

CONTAINER TYPE PLASTIC (P) or GLASS (G): G
PRESERVATIVE USED: HCl
TYPE OF ANALYSIS: VOC

DATE YEAR 2011	TIME	SAMPLE ID	MATRIX	GRAB (G) COMP (C)	No. OF CONTAINERS	VOC							COMMENTS
10-11	1530	FT-TB03-20111011	QC	—	2	2							Lab prepared
10-20	0920	FT-FB02-20111020	QC	-	2	2				Source Water Blank			~~Rinsate on cutting shoe~~ JB 10-25-11
10-20	1015	FT-GW431-7175	GW	G	2	2							
10-20	1025	FT-GW431-6165	GW	G	2	2							
10-20	1042	FT-GW431-3135	GW	G	6	6							Run MSMSD
10-20	1130	FT-RB02-20111020	QC	—	2	2							Rinsate Blank on cutting shoe
10-20	1220	FT-GW431-5155	GW	G	2	2							
10-20	1236	FT-GW431-4145	GW	G	2	2							
10-20	1248	FT-GW431-2125	GW	G	2	2							
10-20	1500	FT-GW432-7175	GW	G	2	2							
10-20	1516	FT-GW432-6165	GW	G	2	2							
10-20	1531	FT-GW432-3135	GW	G	2	2							
10-20	0900	FT-Dup03-20111020	GW	G	2	2							

Temp 4°C

	DATE	TIME		DATE	TIME
1. RELINQUISHED BY Jacob Birkett	10-21-11	1400	1. RECEIVED BY		
2. RELINQUISHED BY			2. RECEIVED BY		
3. RELINQUISHED BY Fed Ex	10/22/11	10:15	3. RECEIVED BY	10/22/11	10:15

COMMENTS

DISTRIBUTION: WHITE (ACCOMPANIES SAMPLE) YELLOW (FIELD COPY) PINK (FILE COPY)

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FORM NO. TtNUS-001

C4303

TETRA TECH NUS, INC. CHAIN OF CUSTODY | NUMBER | PAGE 2 OF 2

PROJECT NO:	SITE NAME:	PROJECT MANAGER AND PHONE NUMBER	LABORATORY NAME AND CONTACT:
112G02750	NWIRP Calverton Site 2	David Brayack 757-461-3824	Chemtech Kurt Hummler
SAMPLERS (SIGNATURE)		FIELD OPERATIONS LEADER AND PHONE NUMBER: Jacob Birkett 757-814-9916	ADDRESS: 284 Sheffield St.
		CARRIER/WAYBILL NUMBER: FedEx 8741-9938-0659	CITY, STATE: Mountainside, NJ 07092

STANDARD TAT ☒
RUSH TAT ☐
☐ 24 hr. ☐ 48 hr. ☐ 72 hr. ☐ 7 day ☐ 14 day

CONTAINER TYPE PLASTIC (P) or GLASS (G): G

PRESERVATIVE USED: HCl

TYPE OF ANALYSIS: VOCs

DATE YEAR 2011	TIME	SAMPLE ID	MATRIX	GRAB (G) COMP (C)	No. OF CONTAINERS	VOCs								COMMENTS
10-21	0906	FT-GW432-5155	GW	G	2	2								
10-21	0926	FT-GW432-4145	GW	G	2	2								
10-21	1021	FT-GW432-2630	GW	G	2	2								
10-21	0800	FT-Dup04-20111021	GW	G	2	2								
10-21	1111	FT-GW433-2630	GW	G	2	2								
10-21	1140	FT-GW433-3135	GW	G	2	2								

10-21-11

1. RELINQUISHED BY: Jacob Birkett	DATE: 10-21-11	TIME: 1400	1. RECEIVED BY	DATE	TIME
2. RELINQUISHED BY	DATE	TIME	2. RECEIVED BY	DATE	TIME
3. RELINQUISHED BY: Fed Ex	DATE: 10/22/11	TIME: 10:15	3. RECEIVED BY: Ken Rivera	DATE: 10/22/11	TIME: 10:15

COMMENTS

DISTRIBUTION: WHITE (ACCOMPANIES SAMPLE) YELLOW (FIELD COPY) PINK (FILE COPY)

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FORM NO. TtNUS-001

TETRA TECH NUS, INC. CHAIN OF CUSTODY | NUMBER | PAGE 1 OF 3 C4354

PROJECT NO:	SITE NAME:	PROJECT MANAGER AND PHONE NUMBER	LABORATORY NAME AND CONTACT:
112G02750	NWIRP Calverton	Dave Brayack 757-461-3824	Chemtech Kurt Hummler
SAMPLERS (SIGNATURE)		FIELD OPERATIONS LEADER AND PHONE NUMBER: Jacob Birkett 757-814-9916	ADDRESS: 284 Sheffield St.
		CARRIER/WAYBILL NUMBER: FedEx 8741-9938-1287	CITY, STATE: Mountainside, NJ 07092

STANDARD TAT ☒
RUSH TAT ☐
☐ 24 hr. ☐ 48 hr. ☐ 72 hr. ☐ 7 day ☐ 14 day

CONTAINER TYPE PLASTIC (P) or GLASS (G): G
PRESERVATIVE USED: HCl

	DATE YEAR 2011	TIME	SAMPLE ID	MATRIX	GRAB (G) COMP (C)	No. OF CONTAINERS	TYPE OF ANALYSIS: VOCs							COMMENTS
1.	10-11	1530	FT-TB04-20111011	QC	—	2	2							Lab prepared
2.	10-24	1115	FT-GW433-4145	GW	G	2	2							
3.	10-24	1132	FT-GW433-7175	GW	G	2	2							
4.	10-24	1255	FT-GW433-5155	GW	G	2	2							
5.	10-24	1313	FT-GW433-5963	GW	G	2	2							
6.	10-24	1450	FT-GW435-7175	GW	G	2	2							
7.	10-24	1505	FT-GW435-2125	GW	G	2	2							
8.	10-24	1520	FT-GW435-3135	GW	G	2	2							
9.	10-25	0830	FT-FB03-20111025	QC	—	2	2							Source Blank
10.	10-25	0825	FT-RB03-20111025	QC	—	2	2							Rinsate Blank
11.	10-25	0929	FT-GW435-6165	GW	G	2	2							
12,13,14	10-25	0949	FT-GW435-5155	GW	G	6	6							Run MSMSD
15.	10-25	1013	FT-GW435-4145	GW	G	2	2							Temp: 4°C

	DATE	TIME		DATE	TIME
1. RELINQUISHED BY Jacob Birkett	10-26-11	1430	1. RECEIVED BY		
2. RELINQUISHED BY			2. RECEIVED BY		
3. RELINQUISHED BY Fed Ex	10/27/11	9:15	3. RECEIVED BY	10/27/11	9:15

COMMENTS

DISTRIBUTION: WHITE (ACCOMPANIES SAMPLE) YELLOW (FIELD COPY) PINK (FILE COPY)

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FORM NO. TtNUS-001

TETRA TECH NUS, INC. CHAIN OF CUSTODY | NUMBER | PAGE 2 OF 3

C4355

PROJECT NO:	SITE NAME:	PROJECT MANAGER AND PHONE NUMBER	LABORATORY NAME AND CONTACT:
112G02750	NWIRP Calverton	Dave Brayack 757-461-3824	Chemtech Kurt Hummler
SAMPLERS (SIGNATURE)		FIELD OPERATIONS LEADER AND PHONE NUMBER: Jacob Birkett	ADDRESS: 284 Sheffield St.
		CARRIER/WAYBILL NUMBER: FedEx 8741-9938-1287	CITY, STATE: Mountainside, NJ 07092

STANDARD TAT ☒
RUSH TAT ☐
☐ 24 hr. ☐ 48 hr. ☐ 72 hr. ☐ 7 day ☐ 14 day

CONTAINER TYPE PLASTIC (P) or GLASS (G): G
PRESERVATIVE USED: HCl

DATE YEAR 2011	TIME	SAMPLE ID	MATRIX	GRAB (G) COMP (C)	No. OF CONTAINERS	TYPE OF ANALYSIS: VOCs								COMMENTS
10-25	1213	FT-GW434-7175	GW	G	2	2								
10-25	1238	FT-GW434-2630	GW	G	2	2								
10-25	1258	FT-GW434-3135	GW	G	2	2								
10-25	1415	FT-GW434-5155	GW	G	2	2								
10-25	1430	FT-GW434-4145	GW	G	2	2								
10-25	1449	FT-GW 434-6165	GW	G	2	2								
10-25	0830	FT-Dup05-20111025	GW	G	2	2								
10-25	1230	FT-Dup06-20111025	GW	G	2	2								
10-26	0905	FT-GW436-7175	GW	G	2	2								
10-26	0921	FT-GW436-5155	GW	G	2	2								
10-26	0935	FT-GW436-3135	GW	G	2	2								
10-26	1042	FT-GW436-6165	GW	G	2	2								
10-26	1059	FT-GW436-4145	GW	G	2	2								Temp: 4°C

	DATE	TIME		DATE	TIME
1. RELINQUISHED BY: Jacob Birkett	10-26-11	1430	1. RECEIVED BY		
2. RELINQUISHED BY			2. RECEIVED BY		
3. RELINQUISHED BY: FedEx	10/27/11	9:15	3. RECEIVED BY: Ken Russ	10/27/11	9:15

COMMENTS

DISTRIBUTION: WHITE (ACCOMPANIES SAMPLE) YELLOW (FIELD COPY) PINK (FILE COPY)

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FORM NO. TtNUS-001

C4355

TETRA TECH NUS, INC. CHAIN OF CUSTODY | NUMBER | PAGE 3 OF 3

PROJECT NO: 112G02750	SITE NAME: NWIRP Calverton	PROJECT MANAGER AND PHONE NUMBER: Dave Brayack 757-461-3824	LABORATORY NAME AND CONTACT: Chemtech Kurt Hummler
SAMPLERS (SIGNATURE): Jacob Birkett		FIELD OPERATIONS LEADER AND PHONE NUMBER: Jacob Birkett 757-814-9916	ADDRESS: 284 Sheffield St.
		CARRIER/WAYBILL NUMBER: FedEx 8741-9938-1287	CITY, STATE: Mountainside, NJ 07092

STANDARD TAT ☒
RUSH TAT ☐
☐ 24 hr. ☐ 48 hr. ☐ 72 hr. ☐ 7 day ☐ 14 day

CONTAINER TYPE PLASTIC (P) or GLASS (G): G
PRESERVATIVE USED: HCl

DATE YEAR 2011	TIME	SAMPLE ID	MATRIX	GRAB (G) COMP (C)	No. OF CONTAINERS	TYPE OF ANALYSIS: VOCs								COMMENTS
10-26	1115	FT-GW436-2630	GW	G	2	2								

10-26-11

1. RELINQUISHED BY: Jacob Birkett	DATE: 10-26-11	TIME: 1430	1. RECEIVED BY	DATE	TIME
2. RELINQUISHED BY	DATE	TIME	2. RECEIVED BY	DATE	TIME
3. RELINQUISHED BY: FedEx	DATE: 10/27/11	TIME: 9:15	3. RECEIVED BY: [illegible]	DATE: 10/27/11	TIME: 9:15

COMMENTS

DISTRIBUTION: WHITE (ACCOMPANIES SAMPLE) YELLOW (FIELD COPY) PINK (FILE COPY)

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FORM NO. TtNUS-001

TETRA TECH NUS, INC. CHAIN OF CUSTODY | NUMBER | PAGE 1 OF 2 C4998

PROJECT NO: 112G02750	SITE NAME: NWIRP Calverton	PROJECT MANAGER AND PHONE NUMBER: Dave Brayack 757-461-3824	LABORATORY NAME AND CONTACT: Chemtech Kurt Hummler
SAMPLERS (SIGNATURE)		FIELD OPERATIONS LEADER AND PHONE NUMBER: Jacob Birkett 757-814-9916	ADDRESS: 284 Sheffield St.
		CARRIER/WAYBILL NUMBER: FedEx 8741-9938-1298	CITY, STATE: Mountainside NJ 07092

STANDARD TAT ☒
RUSH TAT ☐
☐ 24 hr. ☐ 48 hr. ☐ 72 hr. ☐ 7 day ☐ 14 day

CONTAINER TYPE PLASTIC (P) or GLASS (G): G
PRESERVATIVE USED: HCl

	DATE YEAR 2011	TIME	SAMPLE ID	MATRIX	GRAB (G) COMP (C)	No. OF CONTAINERS	TYPE OF ANALYSIS: VOCs							COMMENTS
1.	12-13	0800	FT-TB01-20111213	QA	-	2	2							Lab prepared
2.	12-13	1048	FT-GW439-2125	GW	G	2	2							
3.	12-13	1051	FT-GW439-3135	GW	G	2	2							
4.	12-13	1059	FT-GW439-4145	GW	G	2	2							
5.	12-13	1120	FT-GW439-5155	GW	G	2	2							
6.	12-13	1230	FT-FB01-20111213	QA	—	2	2							Source Water
7.	12-13	1250	FT-RB01-20111213	QA	—	2	2							Rinsate
8,9,10.	12-13	1409	FT-GW438-3135	GW	G	6	6							Run MS/MSD
11.	12-13	1417	FT-GW438-2125	GW	G	2	2							
12.	12-13	1424	FT-GW438-4145	GW	G	2	2							
13.	12-13	1426	FT-GW438-5155	GW	G	2	2							
14.	12-14	1023	FT-GW437-2125	GW	G	2	2							
15.	12-14	1026	FT-GW437-3135	GW	G	2	2							
16.	12-14	1048	FT-GW437-4145	GW	G	2	2							
17.	12-14	1045	FT-GW437-5155	GW	G	2	2							

1. RELINQUISHED BY	DATE 12-14-11	TIME 1600	1. RECEIVED BY	DATE	TIME Temp: 4°C
2. RELINQUISHED BY	DATE	TIME	2. RECEIVED BY	DATE	TIME
3. RELINQUISHED BY Fed Ex	DATE 12/15/11	TIME 9:15	3. RECEIVED BY	DATE 12/15/11	TIME 9:15

COMMENTS

DISTRIBUTION: WHITE (ACCOMPANIES SAMPLE) YELLOW (FIELD COPY) PINK (FILE COPY)

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FORM NO. TtNUS-001

CHEMTECH

CHAIN OF CUSTODY RECORD

B1111076

284 Sheffield Street, Mountainside, NJ 07092
(908) 789-8900 Fax (908) 789-8922
www.chemtech.net

CHEMTECH PROJECT NO. C4998
QUOTE NO.
COC Number 020973

CLIENT INFORMATION

REPORT TO BE SENT TO:

COMPANY: Tetra Tech
ADDRESS: 5700 Lake Wright Dr. Suite 309
CITY: Norfolk STATE: VA ZIP: 23502
ATTENTION: Dave Brayack
PHONE: 757-461-3824 FAX:

CLIENT PROJECT INFORMATION

PROJECT NAME: NWIRP Calverton
PROJECT NO.: 112G02759 LOCATION:
PROJECT MANAGER: Dave Brayack
e-mail: David.Brayack@tetratech.com
PHONE: 757-461-3824 FAX:

CLIENT BILLING INFORMATION

BILL TO: See Contract PO#:
ADDRESS:
CITY: STATE: ZIP:
ATTENTION: PHONE:

DATA TURNAROUND INFORMATION

FAX: DAYS *
HARD COPY: Standard DAYS *
EDD: DAYS *
PREAPPROVED TAT: ☐ YES ☐ NO
STANDARD TURNAROUND TIME IS 10 BUSINESS DAYS

DATA DELIVERABLE INFORMATION

☐ RESULTS ONLY ☐ USEPA CLP
☐ RESULTS + QC ☐ New York State ASP "B"
☐ New Jersey REDUCED ☐ New York State ASP "A"
☐ New Jersey CLP ☐ Other
☐ EDD FORMAT

ANALYSIS

VOCs

PRESERVATIVES

COMMENTS

← Specify Preservatives
A – HCl B – HNO_3
C – H_2SO_4 D – NaOH
E – ICE F – Other

CHEMTECH SAMPLE KR 12/15/11	PROJECT SAMPLE IDENTIFICATION	SAMPLE MATRIX	SAMPLE TYPE COMP	SAMPLE TYPE GRAB	SAMPLE COLLECTION DATE	SAMPLE COLLECTION TIME	# OF BOTTLES	1 (A)	2	3	4	5	6	7	8	9	COMMENTS
1. 18.	FT-Dup01-20111213	GW		X	12-13-11	1000	2	2									
2. 19.	FT-Dup02-20111214	GW		X	12-14-11	1000	2	2									
3. 20.	FT-GW440-2125	GW		X	12-14-11	1341	2	2									
4. 21.	FT-GW440-3135	GW		X	12-14-11	1343	2	2									
5. 22.	FT-GW440-4145	GW		X	12-14-11	1352	2	2									
6. 23.	FT-GW440-5155	GW		X	12-14-11	1357	2	2									
7.																	
8.																	
9.																	
~~10.~~																	

SAMPLE CUSTODY MUST BE DOCUMENTED BELOW EACH TIME SAMPLES CHANGE POSSESSION INCLUDING COURIER DELIVERY

RELINQUISHED BY SAMPLER	DATE/TIME	RECEIVED BY
1. [signature]	12-14-11 1600	1.
RELINQUISHED BY 2.	DATE/TIME:	RECEIVED BY: 2.
RELINQUISHED BY 3. FedEx	DATE/TIME 12/15/11 9:15	RECEIVED FOR LAB BY: 3. [signature]

Conditions of bottles or coolers at receipt: ☒ Compliant ☐ Non Compliant
MeOH extraction requires an additional 4 oz jar for percent solid.
Comments:

Cooler Temp. 4°C
Ice in Cooler?: YES

Page 2 of 2

SHIPPED VIA: CLIENT: ☐ HAND DELIVERED ☒ OVERNIGHT
CHEMTECH: ☐ PICKED UP ☐ OVERNIGHT

Shipment Complete: ☒ YES ☐ NO

Revision 8/2007

WHITE - CHEMTECH COPY FOR RETURN TO CLIENT YELLOW - CHEMTECH COPY PINK - SAMPLER COPY

APPENDIX E

ANALYTICAL DATA

ANALYTICAL DATA – MONITORING WELLS

INCLUDED IN DATA SUMMARY REPORT FOR 2011 GROUNDWATER INVESTIGATION ACTIVITIES

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

DATA PACKAGE

VOLATILE ORGANICS

PROJECT NAME : CTO WE63

TETRA TECH NUS, INC.

661 Anderson Drive

Pittsburgh, Pennsylvania - 15220-2745

Phone No: 4129218361

ORDER ID : C4270

ATTENTION : David Brayack

ACCREDITED IN ACCORDANCE WITH nelac

DoD ELAP

CHEMTECH 284 Sheffield Street, Mountainside, New Jersey 07092 Phone : 908 789 8900 Fax : 908 789 8922

Cover Page

Order ID : C4270

Project ID : CTO WE63

Client : Tetra Tech NUS, Inc.

Lab Sample Number	Client Sample Number
C4270-01	FT-SB401-0608
C4270-02	FT-SB406-0406
C4270-03	FT-SB407-0608
C4270-04	C4270-03MS
C4270-05	C4270-03MSD
C4270-06	FT-SB405-0204
C4270-07	FT-SB405-0608
C4270-08	FT-SB403-0608
C4270-09	FT-SB402-0608
C4270-10	FT-SB404-0305
C4270-11	FT-SB404-0608
C4270-12	FT-SBDUP01-20111018
C4270-13	FT-SB410-1416
C4270-14	FT-SB413-0002
C4270-15	FT-SB413-0810
C4270-16	FT-SB412-0204
C4270-17	FT-SB412-1214
C4270-18	FT-SB411-0002
C4270-19	FT-SB408-1517
C4270-20	FT-SB409-1315
C4270-21	FT-SBDUP02-20111019

I certify that the data package is in compliance with the terms and conditions of the contract,both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hard copy data package has been authorized by the laboratory manager or his designee, as verified by the following signature.

Signature : _____

NYDOH CERTIFICATION NO - 11376

NJDEP CERTIFICATION NO - 20012

Table of Contents

VOLATILES DATA..... 126

VOLATILES QC DATA..... 127

VOLATILES SAMPLE DATA 169

VOLATILES CALIBRATION DATA 661

VOLATILES RAW QC DATA 864

VOLATILES MISCELLANEOUSDATA 1083

SHIPPING AND RECEIVING DOCUMENTATION 1139

END OF ANALYTICAL RESULTS.....1146

CHEMTECH

CASE NARRATIVE

Tetra Tech NUS, Inc.
Project Name: CTO WE63
Project # N/A
Chemtech Project # C4270
Test Name: VOCMS Group1

A. Number of Samples and Date of Receipt:
21 Solid samples were received on 10/20/2011.

B. Parameters
According to the Chain of Custody document, the following analyses were requested: Cyanide, Hexavalent Chromium, Mercury, Metals ICP-TAL, METALS-TAL, PCB Group1, SVOC-PAH, Trivalent Chromium and VOCMS Group1. This data package contains results for VOCMS Group1.

C. Analytical Techniques:
Rtx-624SIL MS 30m 0.25mm 1.4um 872456The analysis performed on instrument MSVOA_F were done using GC column RTX-VMS, which is 20 meters, 0.18 mm id, 1.0 um df, Restek Cat. #49914. The Trap was supplied by Supelco, VOCARB 3000, Tekmar 2000 Concentrator.The analysis performed on instrument MSVOA_H were done using GC column RTX-VMS which is 20 meters, 0.18 mm id, 1.0 um df, Restek Cat. #49914. The Trap was supplied BY OI Analytical, OI #10 Trap , OI Eclipse 4660 Concentrator.The analysis of VOCMS Group1 was based on method 8260B.

D. QA/ QC Samples:
The Holding Times were met for all analysis.
The Surrogate recoveries met the acceptable criteria except for FT-SB405-0204RE, FT-SB408-1517, FT-SB409-1315, FT-SB409-1315MS, FT-SB409-1315MSD, FT-SB408-1517RE, FT-SB405-0204, FT-SBDUP01-20111018 and FT-SB413-0810.
The Internal Standards Areas met the acceptable requirements except for FT-SB405-0204RE.
The Retention Times were acceptable for all samples.
The MS recoveries met the requirements for all compounds.
The MSD recoveries met the acceptable requirements.
The RPD recoveries met criteria.
The Blank Spike for {BSH1102M1} with File ID: VH044064.D met requirements for all samples except for Methylene Chloride [165%] .
The Blank Spike for {BST1027S1} with File ID: VT000949.D met requirements for all samples except for Tetrachloroethene[135%] .
The Blank analysis indicated presence of Methylene Chloride [2.3 ug/Kg] FileID: VF029243.D {VBF1101S1}, Methylene Chloride [1100 ug/Kg] FileID: VH044063.D {VBH1102M1} due to possible lab contamination.

The Initial Calibration met the requirements except for Methylene Chloride in Instrument MSVOA_F , dated 11/01/11, Sample associated with this calibration was re-analysis for surrogate confirmation,
ICV (VH043994.D) did not meet requirment for Tetrachloroethene
The Continuous Calibration File ID VH044061.D met the requirements except for Acetone .The Continuous Calibration File ID VT0000947.D met the requirements except for Trichlorofluoromethane and o-Xylene .The Continuous Calibration File ID VT000986.D met the requirements except for Acetone and o-Xylene .
The Tuning criteria met requirements.
Samples FT-SB409-1315 and FT-SB408-1517 were diluted due to bad matrices.

E. Additional Comments:
Please use %D calculated based on Avg RF and CCRF for all compounds using Average Response Factor when the %RSD value for a compound is <15% for the Initial Calibration curve and use %D calculated based on Amount added and Calculated amount for all compounds using Linear Regression when the %RSD value for a compound is > 15% for the Initial Calibration curve for SW-846 analysis.

F. Manual Integration Comments:
Please refer to the Manual integration Report included with the Run Logs for information on the manual integrations performed.

I certify that the data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. The laboratory manager or his designee, as verified by the following signature has authorized release of the data contained in this hard copy data package.

Signature_____

I Mildred V. Reyes, as the designated Quality Assurance ~~Officer~~ Supervisor, hereby attest that all electronic deliverables have been thoroughly reviewed and are in agreement with the associated hardcopy data. The enclosed electronic files have been reviewed for accuracy (including significant figures), completeness and format. The laboratory will be responsible for any labor time necessary to correct enclosed electronic deliverables that have been found to be in error. I can be reached at (908) 789-8900 if there are any questions or problems with the enclosed electronic deliverables.

Signature: Mildred V Reyes Title: QA/QC Supervisor Date: 11/21/11

CHEMTECH

284 Sheffield Street Mountainside NJ 07092
Tel. 908-789-8900 Fax: 908-789-8922

DATA REPORTING QUALIFIERS- ORGANIC

For reporting results, the following " Result Qualifiers" are used:

Value	If the result is a value greater than or equal to the detection limit, report the value
U	Indicates the compound was analyzed for but was not detected. Report the minimum detection limit for the sample with the U. This is the detection limit attainable for this particular sample based on any concentration or dilution that may have been required.
ND	Indicates the compound was analyzed for but was not detected
J	Indicates an estimated value**.** This flag is used: (1) When estimating a concentration for a tentatively identified compound (library search hits, where a 1:1 response is assumed.) (2) When the mass spectral data indicated the identification, however the result was less than the specified detection limit greater than zero. If the detection limit was 10ug/L, and a concentration of 3ug/L was calculated, report as 3 J.
B	Indicates the analyte was found in the blank as well as the sample.
E	Indicates the analyte 's concentration exceeds the calibrated range of the instrument for that specific analysis.
D	This flag identifies all compounds identified in an analysis at a secondary dilution factor.
P	This flag is used for Pesticide/PCB target analyte when there is >25% difference for detected concentrations between the two GC columns.
N	This flag indicates presumptive evidence of a compound. This is only used for tentatively identified compounds (TICs), where the identification is based on a mass spectral library search. For generic characterization of a TIC, such as chlorinated hydrocarbon, the flag is not used.
A	This flag indicates that a Tentatively Identified Compound is a suspected Aldol-condensation product.

APPENDIX A

QA REVIEW GENERAL DOCUMENTATION

Project #:__C4270_____

Completed

For thorough review, the report must have the following:

GENERAL:

Are all original paperwork present (chain of custody, record of communication, airbill, sample management lab chronicle, login page) ___✓_____
Check chain-of-custody for proper relinquish/return of samples ____✓_____
Is the chain of custody signed and complete ____✓_____
Check internal chain-of-custody for proper relinquish/return of samples /sample extracts _____✓____
Collect information for each project id from server. Were all requirements followed _____✓_____

COVER PAGE:

Do numbers of samples correspond to the number of samples in the Chain of Custody and on login page ___✓_____
Do lab numbers and client Ids on cover page agree with the Chain of Custody ____✓_____

CHAIN OF CUSTODY:

Do requested analyses on Chain of Custody agree with form I results ___✓_____
Do requested analyses on Chain of Custody agree with the log-in page ____✓_____
Were the correct method log-in for analysis according to the Analytical Request and Chain of Custody ____✓_____
Were the samples received within hold time ____✓_____
Were any problems found with the samples at arrival recorded in the Sample Management Laboratory Chronicle ____✓_____

ANALYTICAL:

Was method requirement followed? _____✓_____
Was client requirement followed? ____✓_____
Does the case narrative summarize all QC failure? _____✓_____
All runlogs reviewed for manual integration requirements _____✓_____
All manual calculations and /or hand notations verified _____✓_____

1st Level QA Review Signature:__ _____ Date:_11/2111_____

2nd Level QA Review Signature:_____ Date:_____

DATA SUMMARY

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	10/18/11
Project:	CTO WE63	Date Received:	10/20/11
Client Sample ID:	FT-SB401-0608	SDG No.:	C4270
Lab Sample ID:	C4270-01	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	7
Sample Wt/Vol:	4.96 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VT000994.D	1		10/28/11	VT102811

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	2.7	U	0.7	5.4	ug/Kg
75-01-4	Vinyl Chloride	2.7	U	1.3	5.4	ug/Kg
75-69-4	Trichlorofluoromethane	2.7	U	1.4	5.4	ug/Kg
75-35-4	1,1-Dichloroethene	2.7	U	1.6	5.4	ug/Kg
67-64-1	Acetone	13.5	U	3.3	27	ug/Kg
75-09-2	Methylene Chloride	2.7	U	1.5	5.4	ug/Kg
156-60-5	trans-1,2-Dichloroethene	2.7	U	0.75	5.4	ug/Kg
75-34-3	1,1-Dichloroethane	2.7	U	1	5.4	ug/Kg
78-93-3	2-Butanone	13.5	U	3.4	27	ug/Kg
156-59-2	cis-1,2-Dichloroethene	2.7	U	0.96	5.4	ug/Kg
71-55-6	1,1,1-Trichloroethane	2.7	U	0.95	5.4	ug/Kg
71-43-2	Benzene	2.7	U	0.41	5.4	ug/Kg
107-06-2	1,2-Dichloroethane	2.7	U	0.69	5.4	ug/Kg
79-01-6	Trichloroethene	2.7	U	0.93	5.4	ug/Kg
108-88-3	Toluene	2.7	U	0.69	5.4	ug/Kg
79-00-5	1,1,2-Trichloroethane	2.7	U	0.98	5.4	ug/Kg
127-18-4	Tetrachloroethene	2.7	U	1.1	5.4	ug/Kg
100-41-4	Ethyl Benzene	2.7	U	0.67	5.4	ug/Kg
179601-23-1	m/p-Xylenes	5.5	U	0.78	11	ug/Kg
95-47-6	o-Xylene	2.7	U	0.74	5.4	ug/Kg
79-34-5	1,1,2,2-Tetrachloroethane	2.7	U	0.5	5.4	ug/Kg
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	50.9		55 - 158	102%	SPK: 50
1868-53-7	Dibromofluoromethane	48.9		53 - 156	98%	SPK: 50
2037-26-5	Toluene-d8	45.4		85 - 115	91%	SPK: 50
460-00-4	4-Bromofluorobenzene	46.9		85 - 120	94%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	481910	8.05			
540-36-3	1,4-Difluorobenzene	835809	8.95			
3114-55-4	Chlorobenzene-d5	474182	11.71			
3855-82-1	1,4-Dichlorobenzene-d4	277997	13.62			

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	10/18/11
Project:	CTO WE63	Date Received:	10/20/11
Client Sample ID:	FT-SB401-0608	SDG No.:	C4270
Lab Sample ID:	C4270-01	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	7
Sample Wt/Vol:	4.96 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VT000994.D	1		10/28/11	VT102811

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	10/18/11
Project:	CTO WE63	Date Received:	10/20/11
Client Sample ID:	FT-SB406-0406	SDG No.:	C4270
Lab Sample ID:	C4270-02	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	4
Sample Wt/Vol:	4.97 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VT000995.D	1		10/28/11	VT102811

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	2.6	U	0.68	5.2	ug/Kg
75-01-4	Vinyl Chloride	2.6	U	1.3	5.2	ug/Kg
75-69-4	Trichlorofluoromethane	2.6	U	1.4	5.2	ug/Kg
75-35-4	1,1-Dichloroethene	2.6	U	1.5	5.2	ug/Kg
67-64-1	Acetone	13	U	3.2	26	ug/Kg
75-09-2	Methylene Chloride	2.6	U	1.5	5.2	ug/Kg
156-60-5	trans-1,2-Dichloroethene	2.6	U	0.72	5.2	ug/Kg
75-34-3	1,1-Dichloroethane	2.6	U	0.99	5.2	ug/Kg
78-93-3	2-Butanone	13	U	3.3	26	ug/Kg
156-59-2	cis-1,2-Dichloroethene	2.6	U	0.93	5.2	ug/Kg
71-55-6	1,1,1-Trichloroethane	2.6	U	0.92	5.2	ug/Kg
71-43-2	Benzene	2.6	U	0.4	5.2	ug/Kg
107-06-2	1,2-Dichloroethane	2.6	U	0.67	5.2	ug/Kg
79-01-6	Trichloroethene	2.6	U	0.9	5.2	ug/Kg
108-88-3	Toluene	2.6	U	0.67	5.2	ug/Kg
79-00-5	1,1,2-Trichloroethane	2.6	U	0.94	5.2	ug/Kg
127-18-4	Tetrachloroethene	2.6	U	1.1	5.2	ug/Kg
100-41-4	Ethyl Benzene	2.6	U	0.65	5.2	ug/Kg
179601-23-1	m/p-Xylenes	5	U	0.75	10	ug/Kg
95-47-6	o-Xylene	2.6	U	0.71	5.2	ug/Kg
79-34-5	1,1,2,2-Tetrachloroethane	2.6	U	0.48	5.2	ug/Kg
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	53.2		55 - 158	106%	SPK: 50
1868-53-7	Dibromofluoromethane	48.8		53 - 156	98%	SPK: 50
2037-26-5	Toluene-d8	46.5		85 - 115	93%	SPK: 50
460-00-4	4-Bromofluorobenzene	45.6		85 - 120	91%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	448497	8.05			
540-36-3	1,4-Difluorobenzene	792776	8.95			
3114-55-4	Chlorobenzene-d5	463462	11.71			
3855-82-1	1,4-Dichlorobenzene-d4	264489	13.62			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	10/18/11
Project:	CTO WE63	Date Received:	10/20/11
Client Sample ID:	FT-SB406-0406	SDG No.:	C4270
Lab Sample ID:	C4270-02	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	4
Sample Wt/Vol:	4.97 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VT000995.D	1		10/28/11	VT102811

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	10/18/11
Project:	CTO WE63	Date Received:	10/20/11
Client Sample ID:	FT-SB407-0608	SDG No.:	C4270
Lab Sample ID:	C4270-03	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	8
Sample Wt/Vol:	4.92 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VT000963.D	1		10/27/11	VT102711

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	2.75	U	0.72	5.5	ug/Kg
75-01-4	Vinyl Chloride	2.75	U	1.4	5.5	ug/Kg
75-69-4	Trichlorofluoromethane	2.75	U	1.5	5.5	ug/Kg
75-35-4	1,1-Dichloroethene	2.75	U	1.6	5.5	ug/Kg
67-64-1	Acetone	14	U	3.3	28	ug/Kg
75-09-2	Methylene Chloride	2.75	U	1.6	5.5	ug/Kg
156-60-5	trans-1,2-Dichloroethene	2.75	U	0.76	5.5	ug/Kg
75-34-3	1,1-Dichloroethane	2.75	U	1	5.5	ug/Kg
78-93-3	2-Butanone	14	U	3.4	28	ug/Kg
156-59-2	cis-1,2-Dichloroethene	2.75	U	0.98	5.5	ug/Kg
71-55-6	1,1,1-Trichloroethane	2.75	U	0.97	5.5	ug/Kg
71-43-2	Benzene	2.75	U	0.42	5.5	ug/Kg
107-06-2	1,2-Dichloroethane	2.75	U	0.71	5.5	ug/Kg
79-01-6	Trichloroethene	2.75	U	0.95	5.5	ug/Kg
108-88-3	Toluene	2.75	U	0.71	5.5	ug/Kg
79-00-5	1,1,2-Trichloroethane	2.75	U	0.99	5.5	ug/Kg
127-18-4	Tetrachloroethene	2.75	U	1.1	5.5	ug/Kg
100-41-4	Ethyl Benzene	2.75	U	0.68	5.5	ug/Kg
179601-23-1	m/p-Xylenes	5.5	U	0.8	11	ug/Kg
95-47-6	o-Xylene	2.75	U	0.75	5.5	ug/Kg
79-34-5	1,1,2,2-Tetrachloroethane	2.75	U	0.51	5.5	ug/Kg
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	51.7		56 - 120	103%	SPK: 50
1868-53-7	Dibromofluoromethane	48.5		57 - 135	97%	SPK: 50
2037-26-5	Toluene-d8	45.5		67 - 123	91%	SPK: 50
460-00-4	4-Bromofluorobenzene	44.4		33 - 141	89%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	456927	8.06			
540-36-3	1,4-Difluorobenzene	824655	8.96			
3114-55-4	Chlorobenzene-d5	466066	11.71			
3855-82-1	1,4-Dichlorobenzene-d4	271336	13.62			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	10/18/11
Project:	CTO WE63	Date Received:	10/20/11
Client Sample ID:	FT-SB407-0608	SDG No.:	C4270
Lab Sample ID:	C4270-03	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	8
Sample Wt/Vol:	4.92 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VT000963.D	1		10/27/11	VT102711

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	10/18/11
Project:	CTO WE63	Date Received:	10/20/11
Client Sample ID:	FT-SB405-0204	SDG No.:	C4270
Lab Sample ID:	C4270-06	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	12
Sample Wt/Vol:	5.02 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VT000996.D	1		10/28/11	VT102811

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	2.85	U	0.74	5.7	ug/Kg
75-01-4	Vinyl Chloride	2.85	U	1.4	5.7	ug/Kg
75-69-4	Trichlorofluoromethane	2.85	U	1.5	5.7	ug/Kg
75-35-4	1,1-Dichloroethene	2.85	U	1.7	5.7	ug/Kg
67-64-1	Acetone	90		3.4	28	ug/Kg
75-09-2	Methylene Chloride	2.85	U	1.6	5.7	ug/Kg
156-60-5	trans-1,2-Dichloroethene	2.85	U	0.78	5.7	ug/Kg
75-34-3	1,1-Dichloroethane	2.85	U	1.1	5.7	ug/Kg
78-93-3	2-Butanone	14	U	3.5	28	ug/Kg
156-59-2	cis-1,2-Dichloroethene	2.85	U	1	5.7	ug/Kg
71-55-6	1,1,1-Trichloroethane	2.85	U	1	5.7	ug/Kg
71-43-2	Benzene	2.85	U	0.43	5.7	ug/Kg
107-06-2	1,2-Dichloroethane	2.85	U	0.72	5.7	ug/Kg
79-01-6	Trichloroethene	2.85	U	0.97	5.7	ug/Kg
108-88-3	Toluene	2.85	U	0.72	5.7	ug/Kg
79-00-5	1,1,2-Trichloroethane	2.85	U	1	5.7	ug/Kg
127-18-4	Tetrachloroethene	2.85	U	1.1	5.7	ug/Kg
100-41-4	Ethyl Benzene	2.85	U	0.7	5.7	ug/Kg
179601-23-1	m/p-Xylenes	5.5	U	0.81	11	ug/Kg
95-47-6	o-Xylene	2.85	U	0.77	5.7	ug/Kg
79-34-5	1,1,2,2-Tetrachloroethane	2.85	U	0.52	5.7	ug/Kg
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	51		55 - 158	102%	SPK: 50
1868-53-7	Dibromofluoromethane	48.2		53 - 156	96%	SPK: 50
2037-26-5	Toluene-d8	44.9		85 - 115	90%	SPK: 50
460-00-4	4-Bromofluorobenzene	35.5	*	85 - 120	71%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	448042	8.05			
540-36-3	1,4-Difluorobenzene	790590	8.96			
3114-55-4	Chlorobenzene-d5	415240	11.71			
3855-82-1	1,4-Dichlorobenzene-d4	171913	13.62			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	10/18/11
Project:	CTO WE63	Date Received:	10/20/11
Client Sample ID:	FT-SB405-0204	SDG No.:	C4270
Lab Sample ID:	C4270-06	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	12
Sample Wt/Vol:	5.02 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VT000996.D	1		10/28/11	VT102811

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	10/18/11
Project:	CTO WE63	Date Received:	10/20/11
Client Sample ID:	FT-SB405-0204RE	SDG No.:	C4270
Lab Sample ID:	C4270-06RE	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	12
Sample Wt/Vol:	4.95 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VF029246.D	1		11/01/11	VF110111

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	2.85	U	0.75	5.7	ug/Kg
75-01-4	Vinyl Chloride	2.85	U	1.4	5.7	ug/Kg
75-69-4	Trichlorofluoromethane	2.85	U	1.5	5.7	ug/Kg
75-35-4	1,1-Dichloroethene	2.85	U	1.7	5.7	ug/Kg
67-64-1	Acetone	14.5	U	3.5	29	ug/Kg
75-09-2	Methylene Chloride	6	B	1.6	5.7	ug/Kg
156-60-5	trans-1,2-Dichloroethene	2.85	U	0.79	5.7	ug/Kg
75-34-3	1,1-Dichloroethane	2.85	U	1.1	5.7	ug/Kg
78-93-3	2-Butanone	14.5	U	3.6	29	ug/Kg
156-59-2	cis-1,2-Dichloroethene	2.85	U	1	5.7	ug/Kg
71-55-6	1,1,1-Trichloroethane	2.85	U	1	5.7	ug/Kg
71-43-2	Benzene	2.85	U	0.44	5.7	ug/Kg
107-06-2	1,2-Dichloroethane	2.85	U	0.73	5.7	ug/Kg
79-01-6	Trichloroethene	2.85	U	0.99	5.7	ug/Kg
108-88-3	Toluene	2.85	U	0.73	5.7	ug/Kg
79-00-5	1,1,2-Trichloroethane	2.85	U	1	5.7	ug/Kg
127-18-4	Tetrachloroethene	2.85	U	1.2	5.7	ug/Kg
100-41-4	Ethyl Benzene	2.85	U	0.71	5.7	ug/Kg
179601-23-1	m/p-Xylenes	5.5	U	0.83	11	ug/Kg
95-47-6	o-Xylene	2.85	U	0.78	5.7	ug/Kg
79-34-5	1,1,2,2-Tetrachloroethane	2.85	U	0.53	5.7	ug/Kg
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	42.3		55 - 158	85%	SPK: 50
1868-53-7	Dibromofluoromethane	52.5		53 - 156	105%	SPK: 50
2037-26-5	Toluene-d8	49.1		85 - 115	98%	SPK: 50
460-00-4	4-Bromofluorobenzene	41.9	*	85 - 120	84%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	322527	4.33			
540-36-3	1,4-Difluorobenzene	470664	5.07			
3114-55-4	Chlorobenzene-d5	392722	9.29			
3855-82-1	1,4-Dichlorobenzene-d4	145363	12.21			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	10/18/11
Project:	CTO WE63	Date Received:	10/20/11
Client Sample ID:	FT-SB405-0204RE	SDG No.:	C4270
Lab Sample ID:	C4270-06RE	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	12
Sample Wt/Vol:	4.95 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VF029246.D	1		11/01/11	VF110111

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	10/18/11
Project:	CTO WE63	Date Received:	10/20/11
Client Sample ID:	FT-SB405-0608	SDG No.:	C4270
Lab Sample ID:	C4270-07	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	4
Sample Wt/Vol:	4.95 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VT000997.D	1		10/28/11	VT102811

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	2.65	U	0.68	5.3	ug/Kg
75-01-4	Vinyl Chloride	2.65	U	1.3	5.3	ug/Kg
75-69-4	Trichlorofluoromethane	2.65	U	1.4	5.3	ug/Kg
75-35-4	1,1-Dichloroethene	2.65	U	1.5	5.3	ug/Kg
67-64-1	Acetone	13	U	3.2	26	ug/Kg
75-09-2	Methylene Chloride	2.65	U	1.5	5.3	ug/Kg
156-60-5	trans-1,2-Dichloroethene	2.65	U	0.73	5.3	ug/Kg
75-34-3	1,1-Dichloroethane	2.65	U	0.99	5.3	ug/Kg
78-93-3	2-Butanone	13	U	3.3	26	ug/Kg
156-59-2	cis-1,2-Dichloroethene	2.65	U	0.94	5.3	ug/Kg
71-55-6	1,1,1-Trichloroethane	2.65	U	0.93	5.3	ug/Kg
71-43-2	Benzene	2.65	U	0.4	5.3	ug/Kg
107-06-2	1,2-Dichloroethane	2.65	U	0.67	5.3	ug/Kg
79-01-6	Trichloroethene	2.65	U	0.9	5.3	ug/Kg
108-88-3	Toluene	2.65	U	0.67	5.3	ug/Kg
79-00-5	1,1,2-Trichloroethane	2.65	U	0.95	5.3	ug/Kg
127-18-4	Tetrachloroethene	2.65	U	1.1	5.3	ug/Kg
100-41-4	Ethyl Benzene	2.65	U	0.65	5.3	ug/Kg
179601-23-1	m/p-Xylenes	5.5	U	0.76	11	ug/Kg
95-47-6	o-Xylene	2.65	U	0.72	5.3	ug/Kg
79-34-5	1,1,2,2-Tetrachloroethane	2.65	U	0.48	5.3	ug/Kg
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	51.7		55 - 158	103%	SPK: 50
1868-53-7	Dibromofluoromethane	49.1		53 - 156	98%	SPK: 50
2037-26-5	Toluene-d8	45.1		85 - 115	90%	SPK: 50
460-00-4	4-Bromofluorobenzene	45.8		85 - 120	92%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	450899	8.05			
540-36-3	1,4-Difluorobenzene	805060	8.95			
3114-55-4	Chlorobenzene-d5	460639	11.71			
3855-82-1	1,4-Dichlorobenzene-d4	258311	13.62			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	10/18/11
Project:	CTO WE63	Date Received:	10/20/11
Client Sample ID:	FT-SB405-0608	SDG No.:	C4270
Lab Sample ID:	C4270-07	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	4
Sample Wt/Vol:	4.95 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VT000997.D	1		10/28/11	VT102811

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	10/18/11
Project:	CTO WE63	Date Received:	10/20/11
Client Sample ID:	FT-SB403-0608	SDG No.:	C4270
Lab Sample ID:	C4270-08	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	4
Sample Wt/Vol:	4.96 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VT000998.D	1		10/28/11	VT102811

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	2.65	U	0.68	5.3	ug/Kg
75-01-4	Vinyl Chloride	2.65	U	1.3	5.3	ug/Kg
75-69-4	Trichlorofluoromethane	2.65	U	1.4	5.3	ug/Kg
75-35-4	1,1-Dichloroethene	2.65	U	1.5	5.3	ug/Kg
67-64-1	Acetone	13	U	3.2	26	ug/Kg
75-09-2	Methylene Chloride	2.65	U	1.5	5.3	ug/Kg
156-60-5	trans-1,2-Dichloroethene	2.65	U	0.72	5.3	ug/Kg
75-34-3	1,1-Dichloroethane	2.65	U	0.99	5.3	ug/Kg
78-93-3	2-Butanone	13	U	3.3	26	ug/Kg
156-59-2	cis-1,2-Dichloroethene	2.65	U	0.93	5.3	ug/Kg
71-55-6	1,1,1-Trichloroethane	2.65	U	0.92	5.3	ug/Kg
71-43-2	Benzene	2.65	U	0.4	5.3	ug/Kg
107-06-2	1,2-Dichloroethane	2.65	U	0.67	5.3	ug/Kg
79-01-6	Trichloroethene	2.65	U	0.9	5.3	ug/Kg
108-88-3	Toluene	2.65	U	0.67	5.3	ug/Kg
79-00-5	1,1,2-Trichloroethane	2.65	U	0.95	5.3	ug/Kg
127-18-4	Tetrachloroethene	2.65	U	1.1	5.3	ug/Kg
100-41-4	Ethyl Benzene	2.65	U	0.65	5.3	ug/Kg
179601-23-1	m/p-Xylenes	5.5	U	0.76	11	ug/Kg
95-47-6	o-Xylene	2.65	U	0.71	5.3	ug/Kg
79-34-5	1,1,2,2-Tetrachloroethane	2.65	U	0.48	5.3	ug/Kg
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	50.5		55 - 158	101%	SPK: 50
1868-53-7	Dibromofluoromethane	47.2		53 - 156	94%	SPK: 50
2037-26-5	Toluene-d8	46.2		85 - 115	92%	SPK: 50
460-00-4	4-Bromofluorobenzene	43.8		85 - 120	88%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	483442	8.05			
540-36-3	1,4-Difluorobenzene	853890	8.96			
3114-55-4	Chlorobenzene-d5	480317	11.71			
3855-82-1	1,4-Dichlorobenzene-d4	272386	13.62			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	10/18/11
Project:	CTO WE63	Date Received:	10/20/11
Client Sample ID:	FT-SB403-0608	SDG No.:	C4270
Lab Sample ID:	C4270-08	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	4
Sample Wt/Vol:	4.96 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VT000998.D	1		10/28/11	VT102811

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
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E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	10/19/11
Project:	CTO WE63	Date Received:	10/20/11
Client Sample ID:	FT-SB402-0608	SDG No.:	C4270
Lab Sample ID:	C4270-09	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	3
Sample Wt/Vol:	5.09 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VT000999.D	1		10/28/11	VT102811

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	2.55	U	0.66	5.1	ug/Kg
75-01-4	Vinyl Chloride	2.55	U	1.2	5.1	ug/Kg
75-69-4	Trichlorofluoromethane	2.55	U	1.3	5.1	ug/Kg
75-35-4	1,1-Dichloroethene	2.55	U	1.5	5.1	ug/Kg
67-64-1	Acetone	12.5	U	3.1	25	ug/Kg
75-09-2	Methylene Chloride	2.55	U	1.4	5.1	ug/Kg
156-60-5	trans-1,2-Dichloroethene	2.55	U	0.7	5.1	ug/Kg
75-34-3	1,1-Dichloroethane	2.55	U	0.95	5.1	ug/Kg
78-93-3	2-Butanone	12.5	U	3.1	25	ug/Kg
156-59-2	cis-1,2-Dichloroethene	2.55	U	0.9	5.1	ug/Kg
71-55-6	1,1,1-Trichloroethane	2.55	U	0.89	5.1	ug/Kg
71-43-2	Benzene	2.55	U	0.38	5.1	ug/Kg
107-06-2	1,2-Dichloroethane	2.55	U	0.65	5.1	ug/Kg
79-01-6	Trichloroethene	2.55	U	0.87	5.1	ug/Kg
108-88-3	Toluene	2.55	U	0.65	5.1	ug/Kg
79-00-5	1,1,2-Trichloroethane	2.55	U	0.91	5.1	ug/Kg
127-18-4	Tetrachloroethene	2.55	U	1	5.1	ug/Kg
100-41-4	Ethyl Benzene	2.55	U	0.63	5.1	ug/Kg
179601-23-1	m/p-Xylenes	5	U	0.73	10	ug/Kg
95-47-6	o-Xylene	2.55	U	0.69	5.1	ug/Kg
79-34-5	1,1,2,2-Tetrachloroethane	2.55	U	0.47	5.1	ug/Kg
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	49.5		55 - 158	99%	SPK: 50
1868-53-7	Dibromofluoromethane	47.3		53 - 156	95%	SPK: 50
2037-26-5	Toluene-d8	45.6		85 - 115	91%	SPK: 50
460-00-4	4-Bromofluorobenzene	44.4		85 - 120	89%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	482540	8.05			
540-36-3	1,4-Difluorobenzene	847218	8.95			
3114-55-4	Chlorobenzene-d5	481059	11.71			
3855-82-1	1,4-Dichlorobenzene-d4	272958	13.62			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	10/19/11
Project:	CTO WE63	Date Received:	10/20/11
Client Sample ID:	FT-SB402-0608	SDG No.:	C4270
Lab Sample ID:	C4270-09	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	3
Sample Wt/Vol:	5.09 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VT000999.D	1		10/28/11	VT102811

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	10/19/11
Project:	CTO WE63	Date Received:	10/20/11
Client Sample ID:	FT-SB404-0305	SDG No.:	C4270
Lab Sample ID:	C4270-10	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	7
Sample Wt/Vol:	5.01 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VT001000.D	1		10/28/11	VT102811

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	2.7	U	0.7	5.4	ug/Kg
75-01-4	Vinyl Chloride	2.7	U	1.3	5.4	ug/Kg
75-69-4	Trichlorofluoromethane	2.7	U	1.4	5.4	ug/Kg
75-35-4	1,1-Dichloroethene	2.7	U	1.6	5.4	ug/Kg
67-64-1	Acetone	13.5	U	3.2	27	ug/Kg
75-09-2	Methylene Chloride	2.7	U	1.5	5.4	ug/Kg
156-60-5	trans-1,2-Dichloroethene	2.7	U	0.74	5.4	ug/Kg
75-34-3	1,1-Dichloroethane	2.7	U	1	5.4	ug/Kg
78-93-3	2-Butanone	13.5	U	3.3	27	ug/Kg
156-59-2	cis-1,2-Dichloroethene	2.7	U	0.96	5.4	ug/Kg
71-55-6	1,1,1-Trichloroethane	2.7	U	0.94	5.4	ug/Kg
71-43-2	Benzene	2.7	U	0.41	5.4	ug/Kg
107-06-2	1,2-Dichloroethane	2.7	U	0.69	5.4	ug/Kg
79-01-6	Trichloroethene	2.7	U	0.92	5.4	ug/Kg
108-88-3	Toluene	2.7	U	0.69	5.4	ug/Kg
79-00-5	1,1,2-Trichloroethane	2.7	U	0.97	5.4	ug/Kg
127-18-4	Tetrachloroethene	2.7	U	1.1	5.4	ug/Kg
100-41-4	Ethyl Benzene	2.7	U	0.67	5.4	ug/Kg
179601-23-1	m/p-Xylenes	5.5	U	0.77	11	ug/Kg
95-47-6	o-Xylene	2.7	U	0.73	5.4	ug/Kg
79-34-5	1,1,2,2-Tetrachloroethane	2.7	U	0.49	5.4	ug/Kg
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	50.8		55 - 158	102%	SPK: 50
1868-53-7	Dibromofluoromethane	48.2		53 - 156	96%	SPK: 50
2037-26-5	Toluene-d8	46.6		85 - 115	93%	SPK: 50
460-00-4	4-Bromofluorobenzene	44		85 - 120	88%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	467289	8.05			
540-36-3	1,4-Difluorobenzene	833830	8.95			
3114-55-4	Chlorobenzene-d5	476187	11.71			
3855-82-1	1,4-Dichlorobenzene-d4	267547	13.62			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	10/19/11
Project:	CTO WE63	Date Received:	10/20/11
Client Sample ID:	FT-SB404-0305	SDG No.:	C4270
Lab Sample ID:	C4270-10	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	7
Sample Wt/Vol:	5.01 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VT001000.D	1		10/28/11	VT102811

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	10/19/11
Project:	CTO WE63	Date Received:	10/20/11
Client Sample ID:	FT-SB404-0608	SDG No.:	C4270
Lab Sample ID:	C4270-11	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	3
Sample Wt/Vol:	5.03 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VT001001.D	1		10/28/11	VT102811

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	2.55	U	0.67	5.1	ug/Kg
75-01-4	Vinyl Chloride	2.55	U	1.3	5.1	ug/Kg
75-69-4	Trichlorofluoromethane	2.55	U	1.4	5.1	ug/Kg
75-35-4	1,1-Dichloroethene	2.55	U	1.5	5.1	ug/Kg
67-64-1	Acetone	13	U	3.1	26	ug/Kg
75-09-2	Methylene Chloride	2.55	U	1.5	5.1	ug/Kg
156-60-5	trans-1,2-Dichloroethene	2.55	U	0.71	5.1	ug/Kg
75-34-3	1,1-Dichloroethane	2.55	U	0.96	5.1	ug/Kg
78-93-3	2-Butanone	13	U	3.2	26	ug/Kg
156-59-2	cis-1,2-Dichloroethene	2.55	U	0.91	5.1	ug/Kg
71-55-6	1,1,1-Trichloroethane	2.55	U	0.9	5.1	ug/Kg
71-43-2	Benzene	2.55	U	0.39	5.1	ug/Kg
107-06-2	1,2-Dichloroethane	2.55	U	0.66	5.1	ug/Kg
79-01-6	Trichloroethene	2.55	U	0.88	5.1	ug/Kg
108-88-3	Toluene	2.55	U	0.66	5.1	ug/Kg
79-00-5	1,1,2-Trichloroethane	2.55	U	0.92	5.1	ug/Kg
127-18-4	Tetrachloroethene	2.55	U	1	5.1	ug/Kg
100-41-4	Ethyl Benzene	2.55	U	0.64	5.1	ug/Kg
179601-23-1	m/p-Xylenes	5	U	0.74	10	ug/Kg
95-47-6	o-Xylene	2.55	U	0.7	5.1	ug/Kg
79-34-5	1,1,2,2-Tetrachloroethane	2.55	U	0.47	5.1	ug/Kg
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	50.7		55 - 158	101%	SPK: 50
1868-53-7	Dibromofluoromethane	48.6		53 - 156	97%	SPK: 50
2037-26-5	Toluene-d8	45.1		85 - 115	90%	SPK: 50
460-00-4	4-Bromofluorobenzene	46.4		85 - 120	93%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	428948	8.05			
540-36-3	1,4-Difluorobenzene	754692	8.95			
3114-55-4	Chlorobenzene-d5	433523	11.71			
3855-82-1	1,4-Dichlorobenzene-d4	256436	13.62			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	10/19/11
Project:	CTO WE63	Date Received:	10/20/11
Client Sample ID:	FT-SB404-0608	SDG No.:	C4270
Lab Sample ID:	C4270-11	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	3
Sample Wt/Vol:	5.03 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VT001001.D	1		10/28/11	VT102811

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TENTATIVE IDENTIFIED COMPOUNDS						
000110-54-3	Hexane	18	J		5.92	ug/Kg

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	10/18/11
Project:	CTO WE63	Date Received:	10/20/11
Client Sample ID:	FT-SBDUP01-20111018	SDG No.:	C4270
Lab Sample ID:	C4270-12	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	4
Sample Wt/Vol:	5.06 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VT001002.D	1		10/28/11	VT102811

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	2.55	U	0.67	5.1	ug/Kg
75-01-4	Vinyl Chloride	2.55	U	1.3	5.1	ug/Kg
75-69-4	Trichlorofluoromethane	2.55	U	1.4	5.1	ug/Kg
75-35-4	1,1-Dichloroethene	2.55	U	1.5	5.1	ug/Kg
67-64-1	Acetone	13	U	3.1	26	ug/Kg
75-09-2	Methylene Chloride	2.55	U	1.5	5.1	ug/Kg
156-60-5	trans-1,2-Dichloroethene	2.55	U	0.71	5.1	ug/Kg
75-34-3	1,1-Dichloroethane	2.55	U	0.97	5.1	ug/Kg
78-93-3	2-Butanone	13	U	3.2	26	ug/Kg
156-59-2	cis-1,2-Dichloroethene	2.55	U	0.92	5.1	ug/Kg
71-55-6	1,1,1-Trichloroethane	2.55	U	0.91	5.1	ug/Kg
71-43-2	Benzene	2.55	U	0.39	5.1	ug/Kg
107-06-2	1,2-Dichloroethane	2.55	U	0.66	5.1	ug/Kg
79-01-6	Trichloroethene	2.55	U	0.89	5.1	ug/Kg
108-88-3	Toluene	2.55	U	0.66	5.1	ug/Kg
79-00-5	1,1,2-Trichloroethane	2.55	U	0.93	5.1	ug/Kg
127-18-4	Tetrachloroethene	2.55	U	1	5.1	ug/Kg
100-41-4	Ethyl Benzene	2.55	U	0.64	5.1	ug/Kg
179601-23-1	m/p-Xylenes	5	U	0.74	10	ug/Kg
95-47-6	o-Xylene	2.55	U	0.7	5.1	ug/Kg
79-34-5	1,1,2,2-Tetrachloroethane	2.55	U	0.47	5.1	ug/Kg
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	50.7		55 - 158	101%	SPK: 50
1868-53-7	Dibromofluoromethane	47.5		53 - 156	95%	SPK: 50
2037-26-5	Toluene-d8	46.6		85 - 115	93%	SPK: 50
460-00-4	4-Bromofluorobenzene	41.9	*	85 - 120	84%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	474512	8.05			
540-36-3	1,4-Difluorobenzene	839189	8.95			
3114-55-4	Chlorobenzene-d5	470939	11.71			
3855-82-1	1,4-Dichlorobenzene-d4	261465	13.62			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	10/18/11
Project:	CTO WE63	Date Received:	10/20/11
Client Sample ID:	FT-SBDUP01-20111018	SDG No.:	C4270
Lab Sample ID:	C4270-12	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	4
Sample Wt/Vol:	5.06 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VT001002.D	1		10/28/11	VT102811

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TENTATIVE IDENTIFIED COMPOUNDS						
000110-54-3	Hexane	11	J		5.92	ug/Kg

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	10/18/11
Project:	CTO WE63	Date Received:	10/20/11
Client Sample ID:	FT-SBDUP01-20111018RE	SDG No.:	C4270
Lab Sample ID:	C4270-12RE	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	4
Sample Wt/Vol:	5.02 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VF029247.D	1		11/02/11	VF110111

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	2.6	U	0.67	5.2	ug/Kg
75-01-4	Vinyl Chloride	2.6	U	1.3	5.2	ug/Kg
75-69-4	Trichlorofluoromethane	2.6	U	1.4	5.2	ug/Kg
75-35-4	1,1-Dichloroethene	2.6	U	1.5	5.2	ug/Kg
67-64-1	Acetone	13	U	3.1	26	ug/Kg
75-09-2	Methylene Chloride	3.2	JB	1.5	5.2	ug/Kg
156-60-5	trans-1,2-Dichloroethene	2.6	U	0.72	5.2	ug/Kg
75-34-3	1,1-Dichloroethane	2.6	U	0.98	5.2	ug/Kg
78-93-3	2-Butanone	13	U	3.2	26	ug/Kg
156-59-2	cis-1,2-Dichloroethene	2.6	U	0.92	5.2	ug/Kg
71-55-6	1,1,1-Trichloroethane	2.6	U	0.91	5.2	ug/Kg
71-43-2	Benzene	2.6	U	0.39	5.2	ug/Kg
107-06-2	1,2-Dichloroethane	2.6	U	0.66	5.2	ug/Kg
79-01-6	Trichloroethene	2.6	U	0.89	5.2	ug/Kg
108-88-3	Toluene	2.6	U	0.66	5.2	ug/Kg
79-00-5	1,1,2-Trichloroethane	2.6	U	0.93	5.2	ug/Kg
127-18-4	Tetrachloroethene	2.6	U	1	5.2	ug/Kg
100-41-4	Ethyl Benzene	2.6	U	0.64	5.2	ug/Kg
179601-23-1	m/p-Xylenes	5	U	0.75	10	ug/Kg
95-47-6	o-Xylene	2.6	U	0.71	5.2	ug/Kg
79-34-5	1,1,2,2-Tetrachloroethane	2.6	U	0.48	5.2	ug/Kg
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	43.6		55 - 158	87%	SPK: 50
1868-53-7	Dibromofluoromethane	52.8		53 - 156	106%	SPK: 50
2037-26-5	Toluene-d8	48.5		85 - 115	97%	SPK: 50
460-00-4	4-Bromofluorobenzene	49		85 - 120	98%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	319295	4.33			
540-36-3	1,4-Difluorobenzene	471512	5.08			
3114-55-4	Chlorobenzene-d5	409233	9.29			
3855-82-1	1,4-Dichlorobenzene-d4	210579	12.21			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	10/18/11
Project:	CTO WE63	Date Received:	10/20/11
Client Sample ID:	FT-SBDUP01-20111018RE	SDG No.:	C4270
Lab Sample ID:	C4270-12RE	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	4
Sample Wt/Vol:	5.02 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VF029247.D	1		11/02/11	VF110111

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	10/19/11
Project:	CTO WE63	Date Received:	10/20/11
Client Sample ID:	FT-SB410-1416	SDG No.:	C4270
Lab Sample ID:	C4270-13	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	14
Sample Wt/Vol:	5.01 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VT001003.D	1		10/28/11	VT102811

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	2.9	U	0.75	5.8	ug/Kg
75-01-4	Vinyl Chloride	2.9	U	1.4	5.8	ug/Kg
75-69-4	Trichlorofluoromethane	2.9	U	1.5	5.8	ug/Kg
75-35-4	1,1-Dichloroethene	2.9	U	1.7	5.8	ug/Kg
67-64-1	Acetone	14.5	U	3.5	29	ug/Kg
75-09-2	Methylene Chloride	2.4	J	1.6	5.8	ug/Kg
156-60-5	trans-1,2-Dichloroethene	2.9	U	0.8	5.8	ug/Kg
75-34-3	1,1-Dichloroethane	2.9	U	1.1	5.8	ug/Kg
78-93-3	2-Butanone	14.5	U	3.6	29	ug/Kg
156-59-2	cis-1,2-Dichloroethene	2.9	U	1	5.8	ug/Kg
71-55-6	1,1,1-Trichloroethane	2.9	U	1	5.8	ug/Kg
71-43-2	Benzene	2.9	U	0.44	5.8	ug/Kg
107-06-2	1,2-Dichloroethane	2.9	U	0.74	5.8	ug/Kg
79-01-6	Trichloroethene	2.9	U	1	5.8	ug/Kg
108-88-3	Toluene	2.9	U	0.74	5.8	ug/Kg
79-00-5	1,1,2-Trichloroethane	2.9	U	1	5.8	ug/Kg
127-18-4	Tetrachloroethene	2.9	U	1.2	5.8	ug/Kg
100-41-4	Ethyl Benzene	2.9	U	0.72	5.8	ug/Kg
179601-23-1	m/p-Xylenes	6	U	0.84	12	ug/Kg
95-47-6	o-Xylene	2.9	U	0.79	5.8	ug/Kg
79-34-5	1,1,2,2-Tetrachloroethane	2.9	U	0.53	5.8	ug/Kg
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	50.9		55 - 158	102%	SPK: 50
1868-53-7	Dibromofluoromethane	48.4		53 - 156	97%	SPK: 50
2037-26-5	Toluene-d8	46.4		85 - 115	93%	SPK: 50
460-00-4	4-Bromofluorobenzene	42.6		85 - 120	85%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	476435	8.05			
540-36-3	1,4-Difluorobenzene	850128	8.95			
3114-55-4	Chlorobenzene-d5	477534	11.71			
3855-82-1	1,4-Dichlorobenzene-d4	268806	13.62			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	10/19/11
Project:	CTO WE63	Date Received:	10/20/11
Client Sample ID:	FT-SB410-1416	SDG No.:	C4270
Lab Sample ID:	C4270-13	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	14
Sample Wt/Vol:	5.01 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VT001003.D	1		10/28/11	VT102811

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TENTATIVE IDENTIFIED COMPOUNDS						
000110-54-3	Hexane	21	J		5.92	ug/Kg

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	10/19/11
Project:	CTO WE63	Date Received:	10/20/11
Client Sample ID:	FT-SB413-0002	SDG No.:	C4270
Lab Sample ID:	C4270-14	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	8
Sample Wt/Vol:	5.09 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VF029268.D	1		11/02/11	VF110211

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	2.65	U	0.69	5.3	ug/Kg
75-01-4	Vinyl Chloride	2.65	U	1.3	5.3	ug/Kg
75-69-4	Trichlorofluoromethane	2.65	U	1.4	5.3	ug/Kg
75-35-4	1,1-Dichloroethene	2.65	U	1.6	5.3	ug/Kg
67-64-1	Acetone	13.5	U	3.2	27	ug/Kg
75-09-2	Methylene Chloride	2.65	U	1.5	5.3	ug/Kg
156-60-5	trans-1,2-Dichloroethene	2.65	U	0.74	5.3	ug/Kg
75-34-3	1,1-Dichloroethane	2.65	U	1	5.3	ug/Kg
78-93-3	2-Butanone	13.5	U	3.3	27	ug/Kg
156-59-2	cis-1,2-Dichloroethene	2.65	U	0.95	5.3	ug/Kg
71-55-6	1,1,1-Trichloroethane	2.65	U	0.94	5.3	ug/Kg
71-43-2	Benzene	2.65	U	0.41	5.3	ug/Kg
107-06-2	1,2-Dichloroethane	2.65	U	0.68	5.3	ug/Kg
79-01-6	Trichloroethene	2.65	U	0.92	5.3	ug/Kg
108-88-3	Toluene	2.65	U	0.68	5.3	ug/Kg
79-00-5	1,1,2-Trichloroethane	2.65	U	0.96	5.3	ug/Kg
127-18-4	Tetrachloroethene	2.65	U	1.1	5.3	ug/Kg
100-41-4	Ethyl Benzene	2.65	U	0.66	5.3	ug/Kg
179601-23-1	m/p-Xylenes	5.5	U	0.77	11	ug/Kg
95-47-6	o-Xylene	2.65	U	0.73	5.3	ug/Kg
79-34-5	1,1,2,2-Tetrachloroethane	2.65	U	0.49	5.3	ug/Kg
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	41.7		55 - 158	83%	SPK: 50
1868-53-7	Dibromofluoromethane	47.9		53 - 156	96%	SPK: 50
2037-26-5	Toluene-d8	48.2		85 - 115	96%	SPK: 50
460-00-4	4-Bromofluorobenzene	44.1		85 - 120	88%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	302690	4.33			
540-36-3	1,4-Difluorobenzene	457902	5.08			
3114-55-4	Chlorobenzene-d5	389177	9.29			
3855-82-1	1,4-Dichlorobenzene-d4	192975	12.22			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	10/19/11
Project:	CTO WE63	Date Received:	10/20/11
Client Sample ID:	FT-SB413-0002	SDG No.:	C4270
Lab Sample ID:	C4270-14	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	8
Sample Wt/Vol:	5.09 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VF029268.D	1		11/02/11	VF110211

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	10/19/11
Project:	CTO WE63	Date Received:	10/20/11
Client Sample ID:	FT-SB413-0810	SDG No.:	C4270
Lab Sample ID:	C4270-15	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	8
Sample Wt/Vol:	5.07 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VT001005.D	1		10/28/11	VT102811

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	2.7	U	0.7	5.4	ug/Kg
75-01-4	Vinyl Chloride	2.7	U	1.3	5.4	ug/Kg
75-69-4	Trichlorofluoromethane	2.7	U	1.4	5.4	ug/Kg
75-35-4	1,1-Dichloroethene	2.7	U	1.6	5.4	ug/Kg
67-64-1	Acetone	13.5	U	3.2	27	ug/Kg
75-09-2	Methylene Chloride	2.7	U	1.5	5.4	ug/Kg
156-60-5	trans-1,2-Dichloroethene	2.7	U	0.74	5.4	ug/Kg
75-34-3	1,1-Dichloroethane	2.7	U	1	5.4	ug/Kg
78-93-3	2-Butanone	13.5	U	3.3	27	ug/Kg
156-59-2	cis-1,2-Dichloroethene	2.7	U	0.95	5.4	ug/Kg
71-55-6	1,1,1-Trichloroethane	2.7	U	0.94	5.4	ug/Kg
71-43-2	Benzene	2.7	U	0.41	5.4	ug/Kg
107-06-2	1,2-Dichloroethane	2.7	U	0.69	5.4	ug/Kg
79-01-6	Trichloroethene	2.7	U	0.92	5.4	ug/Kg
108-88-3	Toluene	2.7	U	0.69	5.4	ug/Kg
79-00-5	1,1,2-Trichloroethane	2.7	U	0.96	5.4	ug/Kg
127-18-4	Tetrachloroethene	2.7	U	1.1	5.4	ug/Kg
100-41-4	Ethyl Benzene	2.7	U	0.66	5.4	ug/Kg
179601-23-1	m/p-Xylenes	5.5	U	0.77	11	ug/Kg
95-47-6	o-Xylene	2.7	U	0.73	5.4	ug/Kg
79-34-5	1,1,2,2-Tetrachloroethane	2.7	U	0.49	5.4	ug/Kg
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	49.3		55 - 158	99%	SPK: 50
1868-53-7	Dibromofluoromethane	48.3		53 - 156	97%	SPK: 50
2037-26-5	Toluene-d8	46.5		85 - 115	93%	SPK: 50
460-00-4	4-Bromofluorobenzene	42.2	*	85 - 120	84%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	477169	8.05			
540-36-3	1,4-Difluorobenzene	837748	8.96			
3114-55-4	Chlorobenzene-d5	467003	11.71			
3855-82-1	1,4-Dichlorobenzene-d4	264141	13.62			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	10/19/11
Project:	CTO WE63	Date Received:	10/20/11
Client Sample ID:	FT-SB413-0810	SDG No.:	C4270
Lab Sample ID:	C4270-15	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	8
Sample Wt/Vol:	5.07 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VT001005.D	1		10/28/11	VT102811

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TENTATIVE IDENTIFIED COMPOUNDS						
000110-54-3	Hexane	14	J		5.92	ug/Kg

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	10/19/11
Project:	CTO WE63	Date Received:	10/20/11
Client Sample ID:	FT-SB413-0810RE	SDG No.:	C4270
Lab Sample ID:	C4270-15RE	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	8
Sample Wt/Vol:	5 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VF029249.D	1		11/02/11	VF110111

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	2.7	U	0.71	5.4	ug/Kg
75-01-4	Vinyl Chloride	2.7	U	1.3	5.4	ug/Kg
75-69-4	Trichlorofluoromethane	2.7	U	1.4	5.4	ug/Kg
75-35-4	1,1-Dichloroethene	2.7	U	1.6	5.4	ug/Kg
67-64-1	Acetone	13.5	U	3.3	27	ug/Kg
75-09-2	Methylene Chloride	2.7	U	1.5	5.4	ug/Kg
156-60-5	trans-1,2-Dichloroethene	2.7	U	0.75	5.4	ug/Kg
75-34-3	1,1-Dichloroethane	2.7	U	1	5.4	ug/Kg
78-93-3	2-Butanone	13.5	U	3.4	27	ug/Kg
156-59-2	cis-1,2-Dichloroethene	2.7	U	0.97	5.4	ug/Kg
71-55-6	1,1,1-Trichloroethane	2.7	U	0.96	5.4	ug/Kg
71-43-2	Benzene	2.7	U	0.41	5.4	ug/Kg
107-06-2	1,2-Dichloroethane	2.7	U	0.7	5.4	ug/Kg
79-01-6	Trichloroethene	2.7	U	0.93	5.4	ug/Kg
108-88-3	Toluene	2.7	U	0.7	5.4	ug/Kg
79-00-5	1,1,2-Trichloroethane	2.7	U	0.98	5.4	ug/Kg
127-18-4	Tetrachloroethene	2.7	U	1.1	5.4	ug/Kg
100-41-4	Ethyl Benzene	2.7	U	0.67	5.4	ug/Kg
179601-23-1	m/p-Xylenes	5.5	U	0.78	11	ug/Kg
95-47-6	o-Xylene	2.7	U	0.74	5.4	ug/Kg
79-34-5	1,1,2,2-Tetrachloroethane	2.7	U	0.5	5.4	ug/Kg
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	46.3		55 - 158	93%	SPK: 50
1868-53-7	Dibromofluoromethane	54.4		53 - 156	109%	SPK: 50
2037-26-5	Toluene-d8	48.4		85 - 115	97%	SPK: 50
460-00-4	4-Bromofluorobenzene	49.2		85 - 120	98%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	306888	4.34			
540-36-3	1,4-Difluorobenzene	462363	5.08			
3114-55-4	Chlorobenzene-d5	401000	9.3			
3855-82-1	1,4-Dichlorobenzene-d4	206504	12.22			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	10/19/11
Project:	CTO WE63	Date Received:	10/20/11
Client Sample ID:	FT-SB413-0810RE	SDG No.:	C4270
Lab Sample ID:	C4270-15RE	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	8
Sample Wt/Vol:	5 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-624 ID : 0.25	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VF029249.D	1		11/02/11	VF110111

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	10/19/11
Project:	CTO WE63	Date Received:	10/20/11
Client Sample ID:	FT-SB412-1214	SDG No.:	C4270
Lab Sample ID:	C4270-17	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	5
Sample Wt/Vol:	5.08 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VT001006.D	1		10/28/11	VT102811

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	2.6	U	0.67	5.2	ug/Kg
75-01-4	Vinyl Chloride	2.6	U	1.3	5.2	ug/Kg
75-69-4	Trichlorofluoromethane	2.6	U	1.4	5.2	ug/Kg
75-35-4	1,1-Dichloroethene	2.6	U	1.5	5.2	ug/Kg
67-64-1	Acetone	13	U	3.1	26	ug/Kg
75-09-2	Methylene Chloride	2.6	U	1.5	5.2	ug/Kg
156-60-5	trans-1,2-Dichloroethene	2.6	U	0.71	5.2	ug/Kg
75-34-3	1,1-Dichloroethane	2.6	U	0.97	5.2	ug/Kg
78-93-3	2-Butanone	13	U	3.2	26	ug/Kg
156-59-2	cis-1,2-Dichloroethene	2.6	U	0.92	5.2	ug/Kg
71-55-6	1,1,1-Trichloroethane	2.6	U	0.91	5.2	ug/Kg
71-43-2	Benzene	2.6	U	0.39	5.2	ug/Kg
107-06-2	1,2-Dichloroethane	2.6	U	0.66	5.2	ug/Kg
79-01-6	Trichloroethene	2.6	U	0.89	5.2	ug/Kg
108-88-3	Toluene	2.6	U	0.66	5.2	ug/Kg
79-00-5	1,1,2-Trichloroethane	2.6	U	0.93	5.2	ug/Kg
127-18-4	Tetrachloroethene	2.6	U	1	5.2	ug/Kg
100-41-4	Ethyl Benzene	2.6	U	0.64	5.2	ug/Kg
179601-23-1	m/p-Xylenes	5	U	0.75	10	ug/Kg
95-47-6	o-Xylene	2.6	U	0.7	5.2	ug/Kg
79-34-5	1,1,2,2-Tetrachloroethane	2.6	U	0.48	5.2	ug/Kg
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	50		55 - 158	100%	SPK: 50
1868-53-7	Dibromofluoromethane	47.2		53 - 156	94%	SPK: 50
2037-26-5	Toluene-d8	45.9		85 - 115	92%	SPK: 50
460-00-4	4-Bromofluorobenzene	43.3		85 - 120	87%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	465390	8.05			
540-36-3	1,4-Difluorobenzene	811849	8.95			
3114-55-4	Chlorobenzene-d5	461666	11.71			
3855-82-1	1,4-Dichlorobenzene-d4	260302	13.62			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	10/19/11
Project:	CTO WE63	Date Received:	10/20/11
Client Sample ID:	FT-SB412-1214	SDG No.:	C4270
Lab Sample ID:	C4270-17	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	5
Sample Wt/Vol:	5.08 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VT001006.D	1		10/28/11	VT102811

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TENTATIVE IDENTIFIED COMPOUNDS						
000110-54-3	Hexane	18	J		5.92	ug/Kg

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	10/19/11
Project:	CTO WE63	Date Received:	10/20/11
Client Sample ID:	FT-SB408-1517	SDG No.:	C4270
Lab Sample ID:	C4270-19	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	16
Sample Wt/Vol:	5.06 Units: g	Final Vol:	10000 uL
Soil Aliquot Vol:	100 uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	MED

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VH044028.D	1		10/28/11	VH102811

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	295	U	65	590	ug/Kg
75-01-4	Vinyl Chloride	295	U	40	590	ug/Kg
75-69-4	Trichlorofluoromethane	295	U	41	590	ug/Kg
75-35-4	1,1-Dichloroethene	295	U	55	590	ug/Kg
67-64-1	Acetone	1450	U	320	2900	ug/Kg
75-09-2	Methylene Chloride	295	U	48	590	ug/Kg
156-60-5	trans-1,2-Dichloroethene	295	U	48	590	ug/Kg
75-34-3	1,1-Dichloroethane	295	U	42	590	ug/Kg
78-93-3	2-Butanone	1450	U	160	2900	ug/Kg
156-59-2	cis-1,2-Dichloroethene	295	U	41	590	ug/Kg
71-55-6	1,1,1-Trichloroethane	295	U	47	590	ug/Kg
71-43-2	Benzene	295	U	38	590	ug/Kg
107-06-2	1,2-Dichloroethane	295	U	56	590	ug/Kg
79-01-6	Trichloroethene	295	U	33	590	ug/Kg
108-88-3	Toluene	295	U	44	590	ug/Kg
79-00-5	1,1,2-Trichloroethane	295	U	45	590	ug/Kg
127-18-4	Tetrachloroethene	295	U	32	590	ug/Kg
100-41-4	Ethyl Benzene	295	U	62	590	ug/Kg
179601-23-1	m/p-Xylenes	1300		110	1200	ug/Kg
95-47-6	o-Xylene	1200		51	590	ug/Kg
79-34-5	1,1,2,2-Tetrachloroethane	295	U	36	590	ug/Kg
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	55		55 - 158	110%	SPK: 50
1868-53-7	Dibromofluoromethane	49		53 - 156	98%	SPK: 50
2037-26-5	Toluene-d8	56.7		85 - 115	113%	SPK: 50
460-00-4	4-Bromofluorobenzene	68.2	*	85 - 120	136%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	370305	4.93			
540-36-3	1,4-Difluorobenzene	602042	5.64			
3114-55-4	Chlorobenzene-d5	614022	9.78			
3855-82-1	1,4-Dichlorobenzene-d4	383390	12.52			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	10/19/11
Project:	CTO WE63	Date Received:	10/20/11
Client Sample ID:	FT-SB408-1517	SDG No.:	C4270
Lab Sample ID:	C4270-19	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	16
Sample Wt/Vol:	5.06 Units: g	Final Vol:	10000 uL
Soil Aliquot Vol:	100 uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	MED

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VH044028.D	1		10/28/11	VH102811

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TENTATIVE IDENTIFIED COMPOUNDS						
108-87-2	Methylcyclohexane	600	J		5.51	ug/Kg
000592-27-8	Heptane, 2-methyl-	890	J		6.64	ug/Kg
015869-92-8	Octane, 3,4-dimethyl-	880	J		6.86	ug/Kg
000591-21-9	1,3-Dimethylcyclohexane,c&t	1300	J		7.06	ug/Kg
001678-91-7	Cyclohexane, ethyl-	1600	J		8.48	ug/Kg
97-63-2	Ethyl Methacrylate	4000	J		8.65	ug/Kg
	unknown9.00	1900	J		9	ug/Kg
002216-34-4	Octane, 4-methyl-	1300	J		9.14	ug/Kg
002216-33-3	Octane, 3-methyl-	1500	J		9.31	ug/Kg
007094-26-0	Cyclohexane, 1,1,2-trimethyl-	940	J		9.55	ug/Kg
006434-77-1	cis-2-Nonene	820	J		9.71	ug/Kg
004926-78-7	Cyclohexane, 1-ethyl-4-methyl-, ci	910	J		9.84	ug/Kg
103-65-1	n-propylbenzene	330	J		11.59	ug/Kg
108-67-8	1,3,5-Trimethylbenzene	6100	J		11.81	ug/Kg
95-63-6	1,2,4-Trimethylbenzene	7500	J		12.18	ug/Kg
135-98-8	sec-Butylbenzene	960	J		12.29	ug/Kg
104-51-8	n-Butylbenzene	3900	J		12.81	ug/Kg
99-87-6	p-Isopropyltoluene	24000	J		13.84	ug/Kg
91-20-3	Naphthalene	2100	J		14.41	ug/Kg

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	10/19/11
Project:	CTO WE63	Date Received:	10/20/11
Client Sample ID:	FT-SB408-1517RE	SDG No.:	C4270
Lab Sample ID:	C4270-19RE	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	16
Sample Wt/Vol:	5.06 Units: g	Final Vol:	10000 uL
Soil Aliquot Vol:	100 uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	MED

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VH044081.D	1		11/02/11	VH110211

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	295	U	65	590	ug/Kg
75-01-4	Vinyl Chloride	295	U	40	590	ug/Kg
75-69-4	Trichlorofluoromethane	295	U	41	590	ug/Kg
75-35-4	1,1-Dichloroethene	295	U	55	590	ug/Kg
67-64-1	Acetone	1450	U	320	2900	ug/Kg
75-09-2	Methylene Chloride	295	U	48	590	ug/Kg
156-60-5	trans-1,2-Dichloroethene	295	U	48	590	ug/Kg
75-34-3	1,1-Dichloroethane	295	U	42	590	ug/Kg
78-93-3	2-Butanone	1450	U	160	2900	ug/Kg
156-59-2	cis-1,2-Dichloroethene	295	U	41	590	ug/Kg
71-55-6	1,1,1-Trichloroethane	295	U	47	590	ug/Kg
71-43-2	Benzene	295	U	38	590	ug/Kg
107-06-2	1,2-Dichloroethane	295	U	56	590	ug/Kg
79-01-6	Trichloroethene	295	U	33	590	ug/Kg
108-88-3	Toluene	295	U	44	590	ug/Kg
79-00-5	1,1,2-Trichloroethane	295	U	45	590	ug/Kg
127-18-4	Tetrachloroethene	295	U	32	590	ug/Kg
100-41-4	Ethyl Benzene	295	U	62	590	ug/Kg
179601-23-1	m/p-Xylenes	1200		110	1200	ug/Kg
95-47-6	o-Xylene	1200		51	590	ug/Kg
79-34-5	1,1,2,2-Tetrachloroethane	295	U	36	590	ug/Kg
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	51.7		55 - 158	103%	SPK: 50
1868-53-7	Dibromofluoromethane	50.3		53 - 156	101%	SPK: 50
2037-26-5	Toluene-d8	54.7		85 - 115	109%	SPK: 50
460-00-4	4-Bromofluorobenzene	64.8	*	85 - 120	130%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	604465	4.92			
540-36-3	1,4-Difluorobenzene	962022	5.64			
3114-55-4	Chlorobenzene-d5	918911	9.79			
3855-82-1	1,4-Dichlorobenzene-d4	443589	12.53			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	10/19/11
Project:	CTO WE63	Date Received:	10/20/11
Client Sample ID:	FT-SB408-1517RE	SDG No.:	C4270
Lab Sample ID:	C4270-19RE	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	16
Sample Wt/Vol:	5.06 Units: g	Final Vol:	10000 uL
Soil Aliquot Vol:	100 uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	MED

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VH044081.D	1		11/02/11	VH110211

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units

U = Not Detected
LOQ = Limit of Quantitation
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E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	10/19/11
Project:	CTO WE63	Date Received:	10/20/11
Client Sample ID:	FT-SB409-1315	SDG No.:	C4270
Lab Sample ID:	C4270-20	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	14
Sample Wt/Vol:	4.95 Units: g	Final Vol:	10000 uL
Soil Aliquot Vol:	100 uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	MED

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VH044029.D	10		10/28/11	VH102811

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	2950	U	650	5900	ug/Kg
75-01-4	Vinyl Chloride	2950	U	400	5900	ug/Kg
75-69-4	Trichlorofluoromethane	2950	U	410	5900	ug/Kg
75-35-4	1,1-Dichloroethene	2950	U	550	5900	ug/Kg
67-64-1	Acetone	14500	U	3200	29000	ug/Kg
75-09-2	Methylene Chloride	2950	U	480	5900	ug/Kg
156-60-5	trans-1,2-Dichloroethene	2950	U	480	5900	ug/Kg
75-34-3	1,1-Dichloroethane	2950	U	420	5900	ug/Kg
78-93-3	2-Butanone	14500	U	1600	29000	ug/Kg
156-59-2	cis-1,2-Dichloroethene	2950	U	410	5900	ug/Kg
71-55-6	1,1,1-Trichloroethane	2950	U	470	5900	ug/Kg
71-43-2	Benzene	2950	U	380	5900	ug/Kg
107-06-2	1,2-Dichloroethane	2950	U	560	5900	ug/Kg
79-01-6	Trichloroethene	2950	U	330	5900	ug/Kg
108-88-3	Toluene	2950	U	430	5900	ug/Kg
79-00-5	1,1,2-Trichloroethane	2950	U	450	5900	ug/Kg
127-18-4	Tetrachloroethene	2950	U	320	5900	ug/Kg
100-41-4	Ethyl Benzene	2950	U	620	5900	ug/Kg
179601-23-1	m/p-Xylenes	6000	U	1100	12000	ug/Kg
95-47-6	o-Xylene	2950	U	510	5900	ug/Kg
79-34-5	1,1,2,2-Tetrachloroethane	2950	U	360	5900	ug/Kg
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	533		56 - 120	107%	SPK: 50
1868-53-7	Dibromofluoromethane	484		57 - 135	97%	SPK: 50
2037-26-5	Toluene-d8	512		67 - 123	102%	SPK: 50
460-00-4	4-Bromofluorobenzene	612		33 - 141	122%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	410186	4.92			
540-36-3	1,4-Difluorobenzene	695270	5.64			
3114-55-4	Chlorobenzene-d5	691041	9.78			
3855-82-1	1,4-Dichlorobenzene-d4	390844	12.52			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	10/19/11
Project:	CTO WE63	Date Received:	10/20/11
Client Sample ID:	FT-SB409-1315	SDG No.:	C4270
Lab Sample ID:	C4270-20	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	14
Sample Wt/Vol:	4.95 Units: g	Final Vol:	10000 uL
Soil Aliquot Vol:	100 uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	MED

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VH044029.D	10		10/28/11	VH102811

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TENTATIVE IDENTIFIED COMPOUNDS						
108-67-8	1,3,5-Trimethylbenzene	4000	J		11.81	ug/Kg
99-87-6	p-Isopropyltoluene	19000	J		13.83	ug/Kg

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	10/19/11
Project:	CTO WE63	Date Received:	10/20/11
Client Sample ID:	FT-SBDUP02-20111019	SDG No.:	C4270
Lab Sample ID:	C4270-21	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	12
Sample Wt/Vol:	5.02 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VT001007.D	1		10/28/11	VT102811

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	2.85	U	0.74	5.7	ug/Kg
75-01-4	Vinyl Chloride	2.85	U	1.4	5.7	ug/Kg
75-69-4	Trichlorofluoromethane	2.85	U	1.5	5.7	ug/Kg
75-35-4	1,1-Dichloroethene	2.85	U	1.7	5.7	ug/Kg
67-64-1	Acetone	14	U	3.4	28	ug/Kg
75-09-2	Methylene Chloride	2.85	U	1.6	5.7	ug/Kg
156-60-5	trans-1,2-Dichloroethene	2.85	U	0.78	5.7	ug/Kg
75-34-3	1,1-Dichloroethane	2.85	U	1.1	5.7	ug/Kg
78-93-3	2-Butanone	14	U	3.5	28	ug/Kg
156-59-2	cis-1,2-Dichloroethene	2.85	U	1	5.7	ug/Kg
71-55-6	1,1,1-Trichloroethane	2.85	U	1	5.7	ug/Kg
71-43-2	Benzene	2.85	U	0.43	5.7	ug/Kg
107-06-2	1,2-Dichloroethane	2.85	U	0.72	5.7	ug/Kg
79-01-6	Trichloroethene	2.85	U	0.97	5.7	ug/Kg
108-88-3	Toluene	2.85	U	0.72	5.7	ug/Kg
79-00-5	1,1,2-Trichloroethane	2.85	U	1	5.7	ug/Kg
127-18-4	Tetrachloroethene	2.85	U	1.1	5.7	ug/Kg
100-41-4	Ethyl Benzene	2.85	U	0.7	5.7	ug/Kg
179601-23-1	m/p-Xylenes	5.5	U	0.81	11	ug/Kg
95-47-6	o-Xylene	2.85	U	0.77	5.7	ug/Kg
79-34-5	1,1,2,2-Tetrachloroethane	2.85	U	0.52	5.7	ug/Kg
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	50.1		55 - 158	100%	SPK: 50
1868-53-7	Dibromofluoromethane	49.1		53 - 156	98%	SPK: 50
2037-26-5	Toluene-d8	46.4		85 - 115	93%	SPK: 50
460-00-4	4-Bromofluorobenzene	42.3		85 - 120	85%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	468788	8.05			
540-36-3	1,4-Difluorobenzene	830965	8.95			
3114-55-4	Chlorobenzene-d5	468761	11.71			
3855-82-1	1,4-Dichlorobenzene-d4	264570	13.62			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	10/19/11
Project:	CTO WE63	Date Received:	10/20/11
Client Sample ID:	FT-SBDUP02-20111019	SDG No.:	C4270
Lab Sample ID:	C4270-21	Matrix:	SOIL
Analytical Method:	SW8260B	% Moisture:	12
Sample Wt/Vol:	5.02 Units: g	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VT001007.D	1		10/28/11	VT102811

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TENTATIVE IDENTIFIED COMPOUNDS						
000110-54-3	Hexane	16	J		5.92	ug/Kg

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

CHEMTECH

Hit Summary Sheet
SW-846

SDG No.: C4270

Client: Tetra Tech NUS, Inc.

Sample ID	Client ID	Matrix	Parameter		Concentration	C	RDL	MDL	Units
Client ID:	**FT-SB404-0608**								
C4270-11	FT-SB404-0608	SOIL	Hexane	*	18.00	J	0	0	ug/Kg
			Total Tics :			**18.00**			
			Total Concentration:			**18.00**			
Client ID:	**FT-SB405-0204**								
C4270-06	FT-SB405-0204	SOIL	Acetone		90.00		28	3.4	ug/Kg
			Total Voc :			**90.00**			
			Total Concentration:			**90.00**			
Client ID:	**FT-SB405-0204RE**								
C4270-06RE	FT-SB405-0204RE	SOIL	Methylene Chloride		6.00	B	5.7	1.6	ug/Kg
			Total Voc :			**6.00**			
			Total Concentration:			**6.00**			
Client ID:	**FT-SB408-1517**								
C4270-19	FT-SB408-1517	SOIL	m/p-Xylenes		1,300.00		1200	110	ug/Kg
C4270-19	FT-SB408-1517	SOIL	o-Xylene		1,200.00		590	51	ug/Kg
			Total Voc :			**2,500.00**			
C4270-19	FT-SB408-1517	SOIL	Methylcyclohexane	*	600.00	J	590	80	ug/Kg
C4270-19	FT-SB408-1517	SOIL	n-propylbenzene	*	330.00	J	590	53	ug/Kg
C4270-19	FT-SB408-1517	SOIL	1,3,5-Trimethylbenzene	*	6,100.00	J	590	54	ug/Kg
C4270-19	FT-SB408-1517	SOIL	1,2,4-Trimethylbenzene	*	7,500.00	J	590	45	ug/Kg
C4270-19	FT-SB408-1517	SOIL	sec-Butylbenzene	*	960.00	J	590	54	ug/Kg
C4270-19	FT-SB408-1517	SOIL	p-Isopropyltoluene	*	24,000.00	J	590	51	ug/Kg
C4270-19	FT-SB408-1517	SOIL	n-Butylbenzene	*	3,900.00	J	590	48	ug/Kg
C4270-19	FT-SB408-1517	SOIL	Naphthalene	*	2,100.00	J	590	79	ug/Kg
C4270-19	FT-SB408-1517	SOIL	Ethyl Methacrylate	*	4,000.00	J	590	590	ug/Kg
C4270-19	FT-SB408-1517	SOIL	unknown9.00	*	1,900.00	J	0	0	ug/Kg
C4270-19	FT-SB408-1517	SOIL	1,3-Dimethylcyclohexane,c&t	*	1,300.00	J	0	0	ug/Kg
C4270-19	FT-SB408-1517	SOIL	Heptane, 2-methyl-	*	890.00	J	0	0	ug/Kg
C4270-19	FT-SB408-1517	SOIL	Cyclohexane, ethyl-	*	1,600.00	J	0	0	ug/Kg
C4270-19	FT-SB408-1517	SOIL	Octane, 3-methyl-	*	1,500.00	J	0	0	ug/Kg
C4270-19	FT-SB408-1517	SOIL	Octane, 4-methyl-	*	1,300.00	J	0	0	ug/Kg
C4270-19	FT-SB408-1517	SOIL	Cyclohexane, 1-ethyl-4-methyl-,	*	910.00	J	0	0	ug/Kg
C4270-19	FT-SB408-1517	SOIL	cis-2-Nonene	*	820.00	J	0	0	ug/Kg
C4270-19	FT-SB408-1517	SOIL	Cyclohexane, 1,1,2-trimethyl-	*	940.00	J	0	0	ug/Kg
C4270-19	FT-SB408-1517	SOIL	Octane, 3,4-dimethyl-	*	880.00	J	0	0	ug/Kg
			Total Tics :			**61,530.00**			
			Total Concentration:			**64,030.00**			
Client ID:	**FT-SB408-1517RE**								
C4270-19RE	FT-SB408-1517RE	SOIL	m/p-Xylenes		1,200.00		1200	110	ug/Kg
C4270-19RE	FT-SB408-1517RE	SOIL	o-Xylene		1,200.00		590	51	ug/Kg

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Hit Summary Sheet
SW-846

SDG No.: C4270

Client: Tetra Tech NUS, Inc.

Sample ID	Client ID	Matrix	Parameter		Concentration	C	RDL	MDL	Units
			Total Voc :			**2,400.00**			
			Total Concentration:			**2,400.00**			
Client ID:	**FT-SB409-1315**								
C4270-20	FT-SB409-1315	SOIL	1,3,5-Trimethylbenzene	*	4,000.00	J	5900	540	ug/Kg
C4270-20	FT-SB409-1315	SOIL	p-Isopropyltoluene	*	19,000.00	J	5900	510	ug/Kg
			Total Tics :			**23,000.00**			
			Total Concentration:			**23,000.00**			
Client ID:	**FT-SB410-1416**								
C4270-13	FT-SB410-1416	SOIL	Methylene Chloride		2.40	J	5.8	1.6	ug/Kg
			Total Voc :			**2.40**			
C4270-13	FT-SB410-1416	SOIL	Hexane	*	21.00	J	0	0	ug/Kg
			Total Tics :			**21.00**			
			Total Concentration:			**23.40**			
Client ID:	**FT-SB412-1214**								
C4270-17	FT-SB412-1214	SOIL	Hexane	*	18.00	J	0	0	ug/Kg
			Total Tics :			**18.00**			
			Total Concentration:			**18.00**			
Client ID:	**FT-SB413-0810**								
C4270-15	FT-SB413-0810	SOIL	Hexane	*	14.00	J	0	0	ug/Kg
			Total Tics :			**14.00**			
			Total Concentration:			**14.00**			
Client ID:	**FT-SBDUP01-20111018**								
C4270-12	FT-SBDUP01-2011101	SOIL	Hexane	*	11.00	J	0	0	ug/Kg
			Total Tics :			**11.00**			
			Total Concentration:			**11.00**			
Client ID:	**FT-SBDUP01-20111018RE**								
C4270-12RE	FT-SBDUP01-2011101	SOIL	Methylene Chloride		3.20	JB	5.2	1.5	ug/Kg
			Total Voc :			**3.20**			
			Total Concentration:			**3.20**			
Client ID:	**FT-SBDUP02-20111019**								
C4270-21	FT-SBDUP02-2011101	SOIL	Hexane	*	16.00	J	0	0	ug/Kg
			Total Tics :			**16.00**			
			Total Concentration:			**16.00**			

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DATA PACKAGE

SEMI-VOLATILE ORGANICS

PROJECT NAME : CTO WE63

TETRA TECH NUS, INC.

661 Anderson Drive

Pittsburgh, Pennsylvania - 15220-2745

Phone No: 4129218361

ORDER ID : C4270

ATTENTION : David Brayack

ACCREDITED IN ACCORDANCE WITH nelac

DoD ELAP

CHEMTECH 284 Sheffield Street, Mountainside, New Jersey 07092 Phone : 908 789 8900 Fax : 908 789 8922

Cover Page

Order ID : C4270

Project ID : CTO WE63

Client : Tetra Tech NUS, Inc.

Lab Sample Number	Client Sample Number
C4270-01	FT-SB401-0608
C4270-02	FT-SB406-0406
C4270-03	FT-SB407-0608
C4270-04	C4270-03MS
C4270-05	C4270-03MSD
C4270-06	FT-SB405-0204
C4270-07	FT-SB405-0608
C4270-08	FT-SB403-0608
C4270-09	FT-SB402-0608
C4270-10	FT-SB404-0305
C4270-11	FT-SB404-0608
C4270-12	FT-SBDUP01-20111018
C4270-13	FT-SB410-1416
C4270-14	FT-SB413-0002
C4270-15	FT-SB413-0810
C4270-16	FT-SB412-0204
C4270-17	FT-SB412-1214
C4270-18	FT-SB411-0002
C4270-19	FT-SB408-1517
C4270-20	FT-SB409-1315
C4270-21	FT-SBDUP02-20111019

I certify that the data package is in compliance with the terms and conditions of the contract,both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hard copy data package has been authorized by the laboratory manager or his designee, as verified by the following signature.

Signature : _____

NYDOH CERTIFICATION NO - 11376

NJDEP CERTIFICATION NO - 20012

Table of Contents

DATA SUMMARY 9

SEMI-VOLATILE DATA 58

SEMI-VOLATILE QC DATA 59

SEMI-VOLATILE SAMPLE DATA 73

SEMI-VOLATILE CALIBRATION DATA 386

SEMI-VOLATILE RAW QC DATA.....421

SEMI-VOLATILE MISCELLANEOUSDATA.....456

SHIPPING AND RECEIVING DOCUMENTATION 478

END OF ANALYTICAL RESULTS.....485

CHEMTECH

CASE NARRATIVE

Tetra Tech NUS, Inc.
Project Name: CTO WE63
Project # N/A
Chemtech Project # C4270
Test Name: SVOC-PAH

A. Number of Samples and Date of Receipt:
21 Solid samples were received on 10/20/2011.

B. Parameters
According to the Chain of Custody document, the following analyses were requested: Cyanide, Hexavalent Chromium, Mercury, Metals ICP-TAL, METALS-TAL, PCB Group1, SVOC-PAH, Trivalent Chromium and VOCMS Group1. This data package contains results for SVOC-PAH.

C. Analytical Techniques:
The samples were analyzed on instrument BNA_G using GC Column RXI-5 SILMS which is 30 meters, 0.25 mm ID, 0.50 um df, Catalog # 13638-124.The analysis of SVOC-PAH was based on method 8270-Modified and extraction was done based on method 3541.

D. QA/ QC Samples:
The Holding Times were met for all analysis.
The Surrogate recoveries met the acceptable criteria except for FT-SB408-1517 [Nitrobenzene-d5 - 451%].Sample is failing in one surrogate, so no corrective action was taken.
The Internal Standards Areas met the acceptable requirements.
The Retention Times were acceptable for all samples.
The MS recoveries met the requirements for all compounds.
The MSD recoveries met the acceptable requirements.
The RPD for {C4270-05MSD} with File ID: BG001261.D recoveries did not met criteria
The Blank Spike for {PB58709BS} with File ID: BG001259.D met requirements for all samples except for Acenaphthene[118%], Benzo(a)anthracene[115%] and Fluorene[118%] .These compounds did not meet in-house limit but was within 80-120%.
The Blank analysis did not indicate the presence of lab contamination.
The Initial Calibration met the requirements.
The Continuous Calibration met the requirements.
The Tuning criteria met requirements.

E. Additional Comments:
Please use %D calculated based on Avg RF and CCRF for all compounds using Average Response Factor when the %RSD value for a compound is <15% for the Initial

Calibration curve and use %D calculated based on Amount added and Calculated amount for all compounds using Linear Regression when the %RSD value for a compound is > 15% for the Initial Calibration curve for SW-846 analysis.

F. Manual Integration Comments:
Please refer to the Manual integration Report included with the Run Logs for information on the manual integrations performed.

I certify that the data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. The laboratory manager or his designee, as verified by the following signature has authorized release of the data contained in this hard copy data package.

Signature_____

I Mildred V. Reyes, as the designated Quality Assurance ~~Officer~~ Supervisor, hereby attest that all electronic deliverables have been thoroughly reviewed and are in agreement with the associated hardcopy data. The enclosed electronic files have been reviewed for accuracy (including significant figures), completeness and format. The laboratory will be responsible for any labor time necessary to correct enclosed electronic deliverables that have been found to be in error. I can be reached at (908) 789-8900 if there are any questions or problems with the enclosed electronic deliverables.

Signature: Mildred V Reyes Title: QA/QC Supervisor Date: 11/21/11

CHEMTECH

284 Sheffield Street Mountainside NJ 07092
Tel. 908-789-8900 Fax: 908-789-8922

DATA REPORTING QUALIFIERS- ORGANIC

For reporting results, the following " Result Qualifiers" are used:

Value	If the result is a value greater than or equal to the detection limit, report the value
U	Indicates the compound was analyzed for but was not detected. Report the minimum detection limit for the sample with the U. This is the detection limit attainable for this particular sample based on any concentration or dilution that may have been required.
ND	Indicates the compound was analyzed for but was not detected
J	Indicates an estimated value**.** This flag is used: (1) When estimating a concentration for a tentatively identified compound (library search hits, where a 1:1 response is assumed.) (2) When the mass spectral data indicated the identification, however the result was less than the specified detection limit greater than zero. If the detection limit was 10ug/L, and a concentration of 3ug/L was calculated, report as 3 J.
B	Indicates the analyte was found in the blank as well as the sample.
E	Indicates the analyte 's concentration exceeds the calibrated range of the instrument for that specific analysis.
D	This flag identifies all compounds identified in an analysis at a secondary dilution factor.
P	This flag is used for Pesticide/PCB target analyte when there is >25% difference for detected concentrations between the two GC columns.
N	This flag indicates presumptive evidence of a compound. This is only used for tentatively identified compounds (TICs), where the identification is based on a mass spectral library search. For generic characterization of a TIC, such as chlorinated hydrocarbon, the flag is not used.
A	This flag indicates that a Tentatively Identified Compound is a suspected Aldol-condensation product.

APPENDIX A

QA REVIEW GENERAL DOCUMENTATION

Project #:__C4270_____

Completed

For thorough review, the report must have the following:

GENERAL:

Are all original paperwork present (chain of custody, record of communication, airbill, sample management lab chronicle, login page) ___✓_____
Check chain-of-custody for proper relinquish/return of samples ____✓_____
Is the chain of custody signed and complete ____✓_____
Check internal chain-of-custody for proper relinquish/return of samples /sample extracts _____✓____
Collect information for each project id from server. Were all requirements followed _____✓_____

COVER PAGE:

Do numbers of samples correspond to the number of samples in the Chain of Custody and on login page ___✓_____
Do lab numbers and client Ids on cover page agree with the Chain of Custody ____✓_____

CHAIN OF CUSTODY:

Do requested analyses on Chain of Custody agree with form I results ___✓_____
Do requested analyses on Chain of Custody agree with the log-in page ____✓_____
Were the correct method log-in for analysis according to the Analytical Request and Chain of Custody ____✓_____
Were the samples received within hold time ____✓_____
Were any problems found with the samples at arrival recorded in the Sample Management Laboratory Chronicle ____✓_____

ANALYTICAL:

Was method requirement followed? _____✓_____
Was client requirement followed? ____✓_____
Does the case narrative summarize all QC failure? _____✓_____
All runlogs reviewed for manual integration requirements _____✓_____
All manual calculations and /or hand notations verified _____✓_____

1st Level QA Review Signature:__ _____ Date:_11/2111_____

2nd Level QA Review Signature:_____ Date:_____

DATA SUMMARY

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	10/18/11
Project:	CTO WE63	Date Received:	10/20/11
Client Sample ID:	FT-SB401-0608	SDG No.:	C4270
Lab Sample ID:	C4270-01	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	7
Sample Wt/Vol:	30.07 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOC-PAH
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BG001249.D	1	10/20/11	10/24/11	PB58709

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
91-20-3	Naphthalene	1.75	U	0.43	3.5	ug/Kg
208-96-8	Acenaphthylene	1.75	U	0.43	3.5	ug/Kg
83-32-9	Acenaphthene	1.75	U	0.43	3.5	ug/Kg
86-73-7	Fluorene	1.75	U	0.43	3.5	ug/Kg
85-01-8	Phenanthrene	1.75	U	0.43	3.5	ug/Kg
120-12-7	Anthracene	1.75	U	0.43	3.5	ug/Kg
206-44-0	Fluoranthene	1.75	U	0.43	3.5	ug/Kg
129-00-0	Pyrene	1.75	U	0.43	3.5	ug/Kg
56-55-3	Benzo(a)anthracene	1.75	U	0.43	3.5	ug/Kg
218-01-9	Chrysene	1.75	U	0.43	3.5	ug/Kg
205-99-2	Benzo(b)fluoranthene	1.75	U	0.43	3.5	ug/Kg
207-08-9	Benzo(k)fluoranthene	1.75	U	0.43	3.5	ug/Kg
50-32-8	Benzo(a)pyrene	1.75	U	0.43	3.5	ug/Kg
193-39-5	Indeno(1,2,3-cd)pyrene	1.75	U	0.43	3.5	ug/Kg
53-70-3	Dibenz(a,h)anthracene	1.75	U	0.43	3.5	ug/Kg
191-24-2	Benzo(g,h,i)perylene	1.75	U	0.43	3.5	ug/Kg
SURROGATES						
4165-60-0	Nitrobenzene-d5	6.89		30 - 150	69%	SPK: 10
321-60-8	2-Fluorobiphenyl	7.96		19 - 182	80%	SPK: 10
1718-51-0	Terphenyl-d14	9.25		24 - 191	93%	SPK: 10
INTERNAL STANDARDS						
3855-82-1	1,4-Dichlorobenzene-d4	44723	8.99			
1146-65-2	Naphthalene-d8	176398	11.17			
15067-26-2	Acenaphthene-d10	114198	14.14			
1517-22-2	Phenanthrene-d10	213172	16.64			
1719-03-5	Chrysene-d12	229473	21.23			
1520-96-3	Perylene-d12	216693	25.4			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.			Date Collected:	10/18/11		
Project:	CTO WE63			Date Received:	10/20/11		
Client Sample ID:	FT-SB401-0608			SDG No.:	C4270		
Lab Sample ID:	C4270-01			Matrix:	SOIL		
Analytical Method:	SW8270C			% Moisture:	7		
Sample Wt/Vol:	30.07	Units:	g	Final Vol:	1000		uL
Soil Aliquot Vol:			uL	Test:	SVOC-PAH		
Extraction Type :	SOXH	Decanted :	N	Level :	LOW		
Injection Volume :	1	GPC Factor :	1.0	GPC Cleanup :	N	PH :	N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BG001249.D	1	10/20/11	10/24/11	PB58709

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	10/18/11
Project:	CTO WE63	Date Received:	10/20/11
Client Sample ID:	FT-SB406-0406	SDG No.:	C4270
Lab Sample ID:	C4270-02	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	4
Sample Wt/Vol:	30.08 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOC-PAH
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BG001250.D	1	10/20/11	10/24/11	PB58709

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
91-20-3	Naphthalene	1.7	U	0.42	3.4	ug/Kg
208-96-8	Acenaphthylene	1.7	U	0.42	3.4	ug/Kg
83-32-9	Acenaphthene	1.7	U	0.42	3.4	ug/Kg
86-73-7	Fluorene	1.7	U	0.42	3.4	ug/Kg
85-01-8	Phenanthrene	1.7	U	0.42	3.4	ug/Kg
120-12-7	Anthracene	1.7	U	0.42	3.4	ug/Kg
206-44-0	Fluoranthene	1.7	U	0.42	3.4	ug/Kg
129-00-0	Pyrene	1.7	U	0.42	3.4	ug/Kg
56-55-3	Benzo(a)anthracene	1.7	U	0.42	3.4	ug/Kg
218-01-9	Chrysene	1.7	U	0.42	3.4	ug/Kg
205-99-2	Benzo(b)fluoranthene	1.7	U	0.42	3.4	ug/Kg
207-08-9	Benzo(k)fluoranthene	1.7	U	0.42	3.4	ug/Kg
50-32-8	Benzo(a)pyrene	1.7	U	0.42	3.4	ug/Kg
193-39-5	Indeno(1,2,3-cd)pyrene	1.7	U	0.42	3.4	ug/Kg
53-70-3	Dibenz(a,h)anthracene	1.7	U	0.42	3.4	ug/Kg
191-24-2	Benzo(g,h,i)perylene	1.7	U	0.42	3.4	ug/Kg
SURROGATES						
4165-60-0	Nitrobenzene-d5	7.09		30 - 150	71%	SPK: 10
321-60-8	2-Fluorobiphenyl	8.21		19 - 182	82%	SPK: 10
1718-51-0	Terphenyl-d14	9.66		24 - 191	97%	SPK: 10
INTERNAL STANDARDS						
3855-82-1	1,4-Dichlorobenzene-d4	44072	8.99			
1146-65-2	Naphthalene-d8	174714	11.16			
15067-26-2	Acenaphthene-d10	112225	14.14			
1517-22-2	Phenanthrene-d10	212045	16.64			
1719-03-5	Chrysene-d12	221967	21.22			
1520-96-3	Perylene-d12	206059	25.4			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.			Date Collected:	10/18/11
Project:	CTO WE63			Date Received:	10/20/11
Client Sample ID:	FT-SB406-0406			SDG No.:	C4270
Lab Sample ID:	C4270-02			Matrix:	SOIL
Analytical Method:	SW8270C			% Moisture:	4
Sample Wt/Vol:	30.08	Units:	g	Final Vol:	1000 uL
Soil Aliquot Vol:			uL	Test:	SVOC-PAH
Extraction Type :	SOXH	Decanted :	N	Level :	LOW
Injection Volume :	1	GPC Factor :	1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BG001250.D	1	10/20/11	10/24/11	PB58709

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	10/18/11
Project:	CTO WE63	Date Received:	10/20/11
Client Sample ID:	FT-SB407-0608	SDG No.:	C4270
Lab Sample ID:	C4270-03	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	8
Sample Wt/Vol:	30.11 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOC-PAH
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BG001251.D	1	10/20/11	10/24/11	PB58709

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
91-20-3	Naphthalene	1.8	U	0.43	3.6	ug/Kg
208-96-8	Acenaphthylene	1.8	U	0.43	3.6	ug/Kg
83-32-9	Acenaphthene	1.8	U	0.43	3.6	ug/Kg
86-73-7	Fluorene	1.8	U	0.43	3.6	ug/Kg
85-01-8	Phenanthrene	1.8	U	0.43	3.6	ug/Kg
120-12-7	Anthracene	1.8	U	0.43	3.6	ug/Kg
206-44-0	Fluoranthene	1.8	U	0.43	3.6	ug/Kg
129-00-0	Pyrene	1.8	U	0.43	3.6	ug/Kg
56-55-3	Benzo(a)anthracene	1.8	U	0.43	3.6	ug/Kg
218-01-9	Chrysene	1.8	U	0.43	3.6	ug/Kg
205-99-2	Benzo(b)fluoranthene	1.8	U	0.43	3.6	ug/Kg
207-08-9	Benzo(k)fluoranthene	1.8	U	0.43	3.6	ug/Kg
50-32-8	Benzo(a)pyrene	1.8	U	0.43	3.6	ug/Kg
193-39-5	Indeno(1,2,3-cd)pyrene	1.8	U	0.43	3.6	ug/Kg
53-70-3	Dibenz(a,h)anthracene	1.8	U	0.43	3.6	ug/Kg
191-24-2	Benzo(g,h,i)perylene	1.8	U	0.43	3.6	ug/Kg
SURROGATES						
4165-60-0	Nitrobenzene-d5	8.43		30 - 150	84%	SPK: 10
321-60-8	2-Fluorobiphenyl	9.57		19 - 182	96%	SPK: 10
1718-51-0	Terphenyl-d14	11		24 - 191	110%	SPK: 10
INTERNAL STANDARDS						
3855-82-1	1,4-Dichlorobenzene-d4	43565	8.99			
1146-65-2	Naphthalene-d8	172761	11.17			
15067-26-2	Acenaphthene-d10	112402	14.14			
1517-22-2	Phenanthrene-d10	208988	16.64			
1719-03-5	Chrysene-d12	219964	21.22			
1520-96-3	Perylene-d12	203095	25.4			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.			Date Collected:	10/18/11		
Project:	CTO WE63			Date Received:	10/20/11		
Client Sample ID:	FT-SB407-0608			SDG No.:	C4270		
Lab Sample ID:	C4270-03			Matrix:	SOIL		
Analytical Method:	SW8270C			% Moisture:	8		
Sample Wt/Vol:	30.11	Units:	g	Final Vol:	1000		uL
Soil Aliquot Vol:			uL	Test:	SVOC-PAH		
Extraction Type :	SOXH	Decanted :	N	Level :	LOW		
Injection Volume :	1	GPC Factor :	1.0	GPC Cleanup :	N	PH :	N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BG001251.D	1	10/20/11	10/24/11	PB58709

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	10/18/11
Project:	CTO WE63	Date Received:	10/20/11
Client Sample ID:	FT-SB403-0608	SDG No.:	C4270
Lab Sample ID:	C4270-08	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	4
Sample Wt/Vol:	30.04 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOC-PAH
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BG001252.D	1	10/20/11	10/24/11	PB58709

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
91-20-3	Naphthalene	1.7	U	0.42	3.4	ug/Kg
208-96-8	Acenaphthylene	1.7	U	0.42	3.4	ug/Kg
83-32-9	Acenaphthene	1.7	U	0.42	3.4	ug/Kg
86-73-7	Fluorene	1.7	U	0.42	3.4	ug/Kg
85-01-8	Phenanthrene	1.7	U	0.42	3.4	ug/Kg
120-12-7	Anthracene	1.7	U	0.42	3.4	ug/Kg
206-44-0	Fluoranthene	1.7	U	0.42	3.4	ug/Kg
129-00-0	Pyrene	1.7	U	0.42	3.4	ug/Kg
56-55-3	Benzo(a)anthracene	1.7	U	0.42	3.4	ug/Kg
218-01-9	Chrysene	1.7	U	0.42	3.4	ug/Kg
205-99-2	Benzo(b)fluoranthene	1.7	U	0.42	3.4	ug/Kg
207-08-9	Benzo(k)fluoranthene	1.7	U	0.42	3.4	ug/Kg
50-32-8	Benzo(a)pyrene	1.7	U	0.42	3.4	ug/Kg
193-39-5	Indeno(1,2,3-cd)pyrene	1.7	U	0.42	3.4	ug/Kg
53-70-3	Dibenz(a,h)anthracene	1.7	U	0.42	3.4	ug/Kg
191-24-2	Benzo(g,h,i)perylene	1.7	U	0.42	3.4	ug/Kg
SURROGATES						
4165-60-0	Nitrobenzene-d5	8.03		30 - 150	80%	SPK: 10
321-60-8	2-Fluorobiphenyl	9.29		19 - 182	93%	SPK: 10
1718-51-0	Terphenyl-d14	10.6		24 - 191	106%	SPK: 10
INTERNAL STANDARDS						
3855-82-1	1,4-Dichlorobenzene-d4	41610	8.99			
1146-65-2	Naphthalene-d8	163376	11.16			
15067-26-2	Acenaphthene-d10	104734	14.14			
1517-22-2	Phenanthrene-d10	196208	16.64			
1719-03-5	Chrysene-d12	210042	21.23			
1520-96-3	Perylene-d12	195046	25.39			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.			Date Collected:	10/18/11		
Project:	CTO WE63			Date Received:	10/20/11		
Client Sample ID:	FT-SB403-0608			SDG No.:	C4270		
Lab Sample ID:	C4270-08			Matrix:	SOIL		
Analytical Method:	SW8270C			% Moisture:	4		
Sample Wt/Vol:	30.04	Units:	g	Final Vol:	1000		uL
Soil Aliquot Vol:			uL	Test:	SVOC-PAH		
Extraction Type :	SOXH	Decanted :	N	Level :	LOW		
Injection Volume :	1	GPC Factor :	1.0	GPC Cleanup :	N	PH :	N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BG001252.D	1	10/20/11	10/24/11	PB58709

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	10/19/11
Project:	CTO WE63	Date Received:	10/20/11
Client Sample ID:	FT-SB402-0608	SDG No.:	C4270
Lab Sample ID:	C4270-09	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	3
Sample Wt/Vol:	30.1 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOC-PAH
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BG001253.D	1	10/20/11	10/24/11	PB58709

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
91-20-3	Naphthalene	1.7	U	0.41	3.4	ug/Kg
208-96-8	Acenaphthylene	1.7	U	0.41	3.4	ug/Kg
83-32-9	Acenaphthene	1.7	U	0.41	3.4	ug/Kg
86-73-7	Fluorene	1.7	U	0.41	3.4	ug/Kg
85-01-8	Phenanthrene	1.7	U	0.41	3.4	ug/Kg
120-12-7	Anthracene	1.7	U	0.41	3.4	ug/Kg
206-44-0	Fluoranthene	1.7	U	0.41	3.4	ug/Kg
129-00-0	Pyrene	1.7	U	0.41	3.4	ug/Kg
56-55-3	Benzo(a)anthracene	1.7	U	0.41	3.4	ug/Kg
218-01-9	Chrysene	1.7	U	0.41	3.4	ug/Kg
205-99-2	Benzo(b)fluoranthene	1.4	J	0.41	3.4	ug/Kg
207-08-9	Benzo(k)fluoranthene	1.7	U	0.41	3.4	ug/Kg
50-32-8	Benzo(a)pyrene	1.7	U	0.41	3.4	ug/Kg
193-39-5	Indeno(1,2,3-cd)pyrene	1.7	U	0.41	3.4	ug/Kg
53-70-3	Dibenz(a,h)anthracene	1.7	U	0.41	3.4	ug/Kg
191-24-2	Benzo(g,h,i)perylene	1.7	U	0.41	3.4	ug/Kg
SURROGATES						
4165-60-0	Nitrobenzene-d5	8.32		30 - 150	83%	SPK: 10
321-60-8	2-Fluorobiphenyl	9.51		19 - 182	95%	SPK: 10
1718-51-0	Terphenyl-d14	11.3		24 - 191	113%	SPK: 10
INTERNAL STANDARDS						
3855-82-1	1,4-Dichlorobenzene-d4	43065	8.99			
1146-65-2	Naphthalene-d8	168860	11.16			
15067-26-2	Acenaphthene-d10	108659	14.14			
1517-22-2	Phenanthrene-d10	202502	16.64			
1719-03-5	Chrysene-d12	213297	21.22			
1520-96-3	Perylene-d12	196166	25.4			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.			Date Collected:	10/19/11		
Project:	CTO WE63			Date Received:	10/20/11		
Client Sample ID:	FT-SB402-0608			SDG No.:	C4270		
Lab Sample ID:	C4270-09			Matrix:	SOIL		
Analytical Method:	SW8270C			% Moisture:	3		
Sample Wt/Vol:	30.1	Units:	g	Final Vol:	1000		uL
Soil Aliquot Vol:			uL	Test:	SVOC-PAH		
Extraction Type :	SOXH	Decanted :	N	Level :	LOW		
Injection Volume :	1	GPC Factor :	1.0	GPC Cleanup :	N	PH :	N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BG001253.D	1	10/20/11	10/24/11	PB58709

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	10/18/11
Project:	CTO WE63	Date Received:	10/20/11
Client Sample ID:	FT-SBDUP01-20111018	SDG No.:	C4270
Lab Sample ID:	C4270-12	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	4
Sample Wt/Vol:	30.07 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOC-PAH
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BG001254.D	1	10/20/11	10/24/11	PB58709

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
91-20-3	Naphthalene	1.7	U	0.42	3.4	ug/Kg
208-96-8	Acenaphthylene	1.7	U	0.42	3.4	ug/Kg
83-32-9	Acenaphthene	1.7	U	0.42	3.4	ug/Kg
86-73-7	Fluorene	1.7	U	0.42	3.4	ug/Kg
85-01-8	Phenanthrene	1.7	U	0.42	3.4	ug/Kg
120-12-7	Anthracene	1.7	U	0.42	3.4	ug/Kg
206-44-0	Fluoranthene	1.7	U	0.42	3.4	ug/Kg
129-00-0	Pyrene	1.7	U	0.42	3.4	ug/Kg
56-55-3	Benzo(a)anthracene	1.7	U	0.42	3.4	ug/Kg
218-01-9	Chrysene	1.7	U	0.42	3.4	ug/Kg
205-99-2	Benzo(b)fluoranthene	1.7	U	0.42	3.4	ug/Kg
207-08-9	Benzo(k)fluoranthene	1.7	U	0.42	3.4	ug/Kg
50-32-8	Benzo(a)pyrene	1.7	U	0.42	3.4	ug/Kg
193-39-5	Indeno(1,2,3-cd)pyrene	1.7	U	0.42	3.4	ug/Kg
53-70-3	Dibenz(a,h)anthracene	1.7	U	0.42	3.4	ug/Kg
191-24-2	Benzo(g,h,i)perylene	1.7	U	0.42	3.4	ug/Kg
SURROGATES						
4165-60-0	Nitrobenzene-d5	7.81		30 - 150	78%	SPK: 10
321-60-8	2-Fluorobiphenyl	8.87		19 - 182	89%	SPK: 10
1718-51-0	Terphenyl-d14	10.2		24 - 191	102%	SPK: 10
INTERNAL STANDARDS						
3855-82-1	1,4-Dichlorobenzene-d4	42296	8.99			
1146-65-2	Naphthalene-d8	165041	11.16			
15067-26-2	Acenaphthene-d10	104957	14.14			
1517-22-2	Phenanthrene-d10	194013	16.64			
1719-03-5	Chrysene-d12	204761	21.22			
1520-96-3	Perylene-d12	187890	25.4			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.			Date Collected:	10/18/11		
Project:	CTO WE63			Date Received:	10/20/11		
Client Sample ID:	FT-SBDUP01-20111018			SDG No.:	C4270		
Lab Sample ID:	C4270-12			Matrix:	SOIL		
Analytical Method:	SW8270C			% Moisture:	4		
Sample Wt/Vol:	30.07	Units:	g	Final Vol:	1000		uL
Soil Aliquot Vol:			uL	Test:	SVOC-PAH		
Extraction Type :	SOXH	Decanted :	N	Level :	LOW		
Injection Volume :	1	GPC Factor :	1.0	GPC Cleanup :	N	PH :	N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BG001254.D	1	10/20/11	10/24/11	PB58709

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	10/19/11
Project:	CTO WE63	Date Received:	10/20/11
Client Sample ID:	FT-SB410-1416	SDG No.:	C4270
Lab Sample ID:	C4270-13	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	14
Sample Wt/Vol:	30.05 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOC-PAH
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BG001255.D	1	10/20/11	10/24/11	PB58709

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
91-20-3	Naphthalene	1.9	U	0.46	3.8	ug/Kg
208-96-8	Acenaphthylene	1.9	U	0.46	3.8	ug/Kg
83-32-9	Acenaphthene	1.9	U	0.46	3.8	ug/Kg
86-73-7	Fluorene	1.9	U	0.46	3.8	ug/Kg
85-01-8	Phenanthrene	1.9	U	0.46	3.8	ug/Kg
120-12-7	Anthracene	1.9	U	0.46	3.8	ug/Kg
206-44-0	Fluoranthene	1.9	U	0.46	3.8	ug/Kg
129-00-0	Pyrene	1.9	U	0.46	3.8	ug/Kg
56-55-3	Benzo(a)anthracene	1.9	U	0.46	3.8	ug/Kg
218-01-9	Chrysene	1.9	U	0.46	3.8	ug/Kg
205-99-2	Benzo(b)fluoranthene	1.9	U	0.46	3.8	ug/Kg
207-08-9	Benzo(k)fluoranthene	1.9	U	0.46	3.8	ug/Kg
50-32-8	Benzo(a)pyrene	1.9	U	0.46	3.8	ug/Kg
193-39-5	Indeno(1,2,3-cd)pyrene	1.9	U	0.46	3.8	ug/Kg
53-70-3	Dibenz(a,h)anthracene	1.9	U	0.46	3.8	ug/Kg
191-24-2	Benzo(g,h,i)perylene	1.9	U	0.46	3.8	ug/Kg
SURROGATES						
4165-60-0	Nitrobenzene-d5	7.59		30 - 150	76%	SPK: 10
321-60-8	2-Fluorobiphenyl	8.78		19 - 182	88%	SPK: 10
1718-51-0	Terphenyl-d14	10.4		24 - 191	104%	SPK: 10
INTERNAL STANDARDS						
3855-82-1	1,4-Dichlorobenzene-d4	43031	8.99			
1146-65-2	Naphthalene-d8	169556	11.16			
15067-26-2	Acenaphthene-d10	109325	14.14			
1517-22-2	Phenanthrene-d10	202250	16.64			
1719-03-5	Chrysene-d12	216432	21.22			
1520-96-3	Perylene-d12	202370	25.4			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.			Date Collected:	10/19/11		
Project:	CTO WE63			Date Received:	10/20/11		
Client Sample ID:	FT-SB410-1416			SDG No.:	C4270		
Lab Sample ID:	C4270-13			Matrix:	SOIL		
Analytical Method:	SW8270C			% Moisture:	14		
Sample Wt/Vol:	30.05	Units:	g	Final Vol:	1000		uL
Soil Aliquot Vol:			uL	Test:	SVOC-PAH		
Extraction Type :	SOXH	Decanted :	N	Level :	LOW		
Injection Volume :	1	GPC Factor :	1.0	GPC Cleanup :	N	PH :	N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BG001255.D	1	10/20/11	10/24/11	PB58709

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	10/19/11
Project:	CTO WE63	Date Received:	10/20/11
Client Sample ID:	FT-SB413-0002	SDG No.:	C4270
Lab Sample ID:	C4270-14	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	8
Sample Wt/Vol:	30.03 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOC-PAH
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BG001265.D	1	10/20/11	10/25/11	PB58709

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
91-20-3	Naphthalene	5.8		0.43	3.6	ug/Kg
208-96-8	Acenaphthylene	1.8	U	0.43	3.6	ug/Kg
83-32-9	Acenaphthene	1.8	U	0.43	3.6	ug/Kg
86-73-7	Fluorene	1.8	U	0.43	3.6	ug/Kg
85-01-8	Phenanthrene	12		0.43	3.6	ug/Kg
120-12-7	Anthracene	2.9	J	0.43	3.6	ug/Kg
206-44-0	Fluoranthene	18		0.43	3.6	ug/Kg
129-00-0	Pyrene	21		0.43	3.6	ug/Kg
56-55-3	Benzo(a)anthracene	1.8	U	0.43	3.6	ug/Kg
218-01-9	Chrysene	13		0.43	3.6	ug/Kg
205-99-2	Benzo(b)fluoranthene	18		0.43	3.6	ug/Kg
207-08-9	Benzo(k)fluoranthene	6.5		0.43	3.6	ug/Kg
50-32-8	Benzo(a)pyrene	13		0.43	3.6	ug/Kg
193-39-5	Indeno(1,2,3-cd)pyrene	8.7		0.43	3.6	ug/Kg
53-70-3	Dibenz(a,h)anthracene	2.9	J	0.43	3.6	ug/Kg
191-24-2	Benzo(g,h,i)perylene	10		0.43	3.6	ug/Kg
SURROGATES						
4165-60-0	Nitrobenzene-d5	8.06		30 - 150	81%	SPK: 10
321-60-8	2-Fluorobiphenyl	9.37		19 - 182	94%	SPK: 10
1718-51-0	Terphenyl-d14	10.6		24 - 191	106%	SPK: 10
INTERNAL STANDARDS						
3855-82-1	1,4-Dichlorobenzene-d4	46773	8.99			
1146-65-2	Naphthalene-d8	186472	11.16			
15067-26-2	Acenaphthene-d10	114706	14.14			
1517-22-2	Phenanthrene-d10	208070	16.64			
1719-03-5	Chrysene-d12	212859	21.22			
1520-96-3	Perylene-d12	194614	25.39			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.			Date Collected:	10/19/11
Project:	CTO WE63			Date Received:	10/20/11
Client Sample ID:	FT-SB413-0002			SDG No.:	C4270
Lab Sample ID:	C4270-14			Matrix:	SOIL
Analytical Method:	SW8270C			% Moisture:	8
Sample Wt/Vol:	30.03	Units:	g	Final Vol:	1000 uL
Soil Aliquot Vol:			uL	Test:	SVOC-PAH
Extraction Type :	SOXH	Decanted :	N	Level :	LOW
Injection Volume :	1	GPC Factor :	1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BG001265.D	1	10/20/11	10/25/11	PB58709

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	10/19/11
Project:	CTO WE63	Date Received:	10/20/11
Client Sample ID:	FT-SB413-0810	SDG No.:	C4270
Lab Sample ID:	C4270-15	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	8
Sample Wt/Vol:	30.11 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOC-PAH
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BG001256.D	1	10/20/11	10/24/11	PB58709

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
91-20-3	Naphthalene	1.8	U	0.43	3.6	ug/Kg
208-96-8	Acenaphthylene	1.8	U	0.43	3.6	ug/Kg
83-32-9	Acenaphthene	1.8	U	0.43	3.6	ug/Kg
86-73-7	Fluorene	1.8	U	0.43	3.6	ug/Kg
85-01-8	Phenanthrene	1.8	U	0.43	3.6	ug/Kg
120-12-7	Anthracene	1.8	U	0.43	3.6	ug/Kg
206-44-0	Fluoranthene	1.8	U	0.43	3.6	ug/Kg
129-00-0	Pyrene	1.8	U	0.43	3.6	ug/Kg
56-55-3	Benzo(a)anthracene	1.8	U	0.43	3.6	ug/Kg
218-01-9	Chrysene	1.8	U	0.43	3.6	ug/Kg
205-99-2	Benzo(b)fluoranthene	1.8	U	0.43	3.6	ug/Kg
207-08-9	Benzo(k)fluoranthene	1.8	U	0.43	3.6	ug/Kg
50-32-8	Benzo(a)pyrene	1.8	U	0.43	3.6	ug/Kg
193-39-5	Indeno(1,2,3-cd)pyrene	1.8	U	0.43	3.6	ug/Kg
53-70-3	Dibenz(a,h)anthracene	1.8	U	0.43	3.6	ug/Kg
191-24-2	Benzo(g,h,i)perylene	1.8	U	0.43	3.6	ug/Kg
SURROGATES						
4165-60-0	Nitrobenzene-d5	8.48		30 - 150	85%	SPK: 10
321-60-8	2-Fluorobiphenyl	9.97		19 - 182	100%	SPK: 10
1718-51-0	Terphenyl-d14	11.7		24 - 191	117%	SPK: 10
INTERNAL STANDARDS						
3855-82-1	1,4-Dichlorobenzene-d4	42504	8.99			
1146-65-2	Naphthalene-d8	172381	11.16			
15067-26-2	Acenaphthene-d10	111416	14.14			
1517-22-2	Phenanthrene-d10	206119	16.64			
1719-03-5	Chrysene-d12	215245	21.22			
1520-96-3	Perylene-d12	199108	25.39			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.			Date Collected:	10/19/11
Project:	CTO WE63			Date Received:	10/20/11
Client Sample ID:	FT-SB413-0810			SDG No.:	C4270
Lab Sample ID:	C4270-15			Matrix:	SOIL
Analytical Method:	SW8270C			% Moisture:	8
Sample Wt/Vol:	30.11	Units:	g	Final Vol:	1000 uL
Soil Aliquot Vol:			uL	Test:	SVOC-PAH
Extraction Type :	SOXH	Decanted :	N	Level :	LOW
Injection Volume :	1	GPC Factor :	1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BG001256.D	1	10/20/11	10/24/11	PB58709

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	10/19/11
Project:	CTO WE63	Date Received:	10/20/11
Client Sample ID:	FT-SB412-0204	SDG No.:	C4270
Lab Sample ID:	C4270-16	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	5
Sample Wt/Vol:	30.06 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOC-PAH
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BG001269.D	1	10/20/11	10/25/11	PB58709

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
91-20-3	Naphthalene	1.75	U	0.42	3.5	ug/Kg
208-96-8	Acenaphthylene	1.75	U	0.42	3.5	ug/Kg
83-32-9	Acenaphthene	1.75	U	0.42	3.5	ug/Kg
86-73-7	Fluorene	1.75	U	0.42	3.5	ug/Kg
85-01-8	Phenanthrene	1.75	U	0.42	3.5	ug/Kg
120-12-7	Anthracene	1.75	U	0.42	3.5	ug/Kg
206-44-0	Fluoranthene	1.75	U	0.42	3.5	ug/Kg
129-00-0	Pyrene	1.75	U	0.42	3.5	ug/Kg
56-55-3	Benzo(a)anthracene	1.75	U	0.42	3.5	ug/Kg
218-01-9	Chrysene	1.75	U	0.42	3.5	ug/Kg
205-99-2	Benzo(b)fluoranthene	1.75	U	0.42	3.5	ug/Kg
207-08-9	Benzo(k)fluoranthene	1.75	U	0.42	3.5	ug/Kg
50-32-8	Benzo(a)pyrene	1.75	U	0.42	3.5	ug/Kg
193-39-5	Indeno(1,2,3-cd)pyrene	1.75	U	0.42	3.5	ug/Kg
53-70-3	Dibenz(a,h)anthracene	1.75	U	0.42	3.5	ug/Kg
191-24-2	Benzo(g,h,i)perylene	1.75	U	0.42	3.5	ug/Kg
SURROGATES						
4165-60-0	Nitrobenzene-d5	7.54		30 - 150	75%	SPK: 10
321-60-8	2-Fluorobiphenyl	9.36		19 - 182	94%	SPK: 10
1718-51-0	Terphenyl-d14	11		24 - 191	110%	SPK: 10
INTERNAL STANDARDS						
3855-82-1	1,4-Dichlorobenzene-d4	47312	9			
1146-65-2	Naphthalene-d8	185853	11.17			
15067-26-2	Acenaphthene-d10	118178	14.14			
1517-22-2	Phenanthrene-d10	207226	16.64			
1719-03-5	Chrysene-d12	213359	21.23			
1520-96-3	Perylene-d12	206634	25.41			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.			Date Collected:	10/19/11
Project:	CTO WE63			Date Received:	10/20/11
Client Sample ID:	FT-SB412-0204			SDG No.:	C4270
Lab Sample ID:	C4270-16			Matrix:	SOIL
Analytical Method:	SW8270C			% Moisture:	5
Sample Wt/Vol:	30.06	Units:	g	Final Vol:	1000 uL
Soil Aliquot Vol:			uL	Test:	SVOC-PAH
Extraction Type :	SOXH	Decanted :	N	Level :	LOW
Injection Volume :	1	GPC Factor :	1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BG001269.D	1	10/20/11	10/25/11	PB58709

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	10/19/11
Project:	CTO WE63	Date Received:	10/20/11
Client Sample ID:	FT-SB412-1214	SDG No.:	C4270
Lab Sample ID:	C4270-17	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	5
Sample Wt/Vol:	30.04 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOC-PAH
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BG001257.D	1	10/20/11	10/24/11	PB58709

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
91-20-3	Naphthalene	1.75	U	0.42	3.5	ug/Kg
208-96-8	Acenaphthylene	1.75	U	0.42	3.5	ug/Kg
83-32-9	Acenaphthene	1.75	U	0.42	3.5	ug/Kg
86-73-7	Fluorene	1.75	U	0.42	3.5	ug/Kg
85-01-8	Phenanthrene	1.75	U	0.42	3.5	ug/Kg
120-12-7	Anthracene	1.75	U	0.42	3.5	ug/Kg
206-44-0	Fluoranthene	1.75	U	0.42	3.5	ug/Kg
129-00-0	Pyrene	1.75	U	0.42	3.5	ug/Kg
56-55-3	Benzo(a)anthracene	1.75	U	0.42	3.5	ug/Kg
218-01-9	Chrysene	1.75	U	0.42	3.5	ug/Kg
205-99-2	Benzo(b)fluoranthene	1.75	U	0.42	3.5	ug/Kg
207-08-9	Benzo(k)fluoranthene	1.75	U	0.42	3.5	ug/Kg
50-32-8	Benzo(a)pyrene	1.75	U	0.42	3.5	ug/Kg
193-39-5	Indeno(1,2,3-cd)pyrene	1.75	U	0.42	3.5	ug/Kg
53-70-3	Dibenz(a,h)anthracene	1.75	U	0.42	3.5	ug/Kg
191-24-2	Benzo(g,h,i)perylene	1.75	U	0.42	3.5	ug/Kg
SURROGATES						
4165-60-0	Nitrobenzene-d5	6.62		30 - 150	66%	SPK: 10
321-60-8	2-Fluorobiphenyl	7.88		19 - 182	79%	SPK: 10
1718-51-0	Terphenyl-d14	9.13		24 - 191	91%	SPK: 10
INTERNAL STANDARDS						
3855-82-1	1,4-Dichlorobenzene-d4	44990	8.99			
1146-65-2	Naphthalene-d8	181409	11.16			
15067-26-2	Acenaphthene-d10	114648	14.14			
1517-22-2	Phenanthrene-d10	211926	16.64			
1719-03-5	Chrysene-d12	219664	21.22			
1520-96-3	Perylene-d12	200572	25.4			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.			Date Collected:	10/19/11
Project:	CTO WE63			Date Received:	10/20/11
Client Sample ID:	FT-SB412-1214			SDG No.:	C4270
Lab Sample ID:	C4270-17			Matrix:	SOIL
Analytical Method:	SW8270C			% Moisture:	5
Sample Wt/Vol:	30.04	Units:	g	Final Vol:	1000 uL
Soil Aliquot Vol:			uL	Test:	SVOC-PAH
Extraction Type :	SOXH	Decanted :	N	Level :	LOW
Injection Volume :	1	GPC Factor :	1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BG001257.D	1	10/20/11	10/24/11	PB58709

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	10/19/11
Project:	CTO WE63	Date Received:	10/20/11
Client Sample ID:	FT-SB411-0002	SDG No.:	C4270
Lab Sample ID:	C4270-18	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	2
Sample Wt/Vol:	30.09 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOC-PAH
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BG001266.D	1	10/20/11	10/25/11	PB58709

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
91-20-3	Naphthalene	11		0.41	3.4	ug/Kg
208-96-8	Acenaphthylene	3.1	J	0.41	3.4	ug/Kg
83-32-9	Acenaphthene	37		0.41	3.4	ug/Kg
86-73-7	Fluorene	19		0.41	3.4	ug/Kg
85-01-8	Phenanthrene	550		0.41	3.4	ug/Kg
120-12-7	Anthracene	79		0.41	3.4	ug/Kg
206-44-0	Fluoranthene	1000		0.41	3.4	ug/Kg
129-00-0	Pyrene	840		0.41	3.4	ug/Kg
56-55-3	Benzo(a)anthracene	460		0.41	3.4	ug/Kg
218-01-9	Chrysene	460		0.41	3.4	ug/Kg
205-99-2	Benzo(b)fluoranthene	580		0.41	3.4	ug/Kg
207-08-9	Benzo(k)fluoranthene	190		0.41	3.4	ug/Kg
50-32-8	Benzo(a)pyrene	420		0.41	3.4	ug/Kg
193-39-5	Indeno(1,2,3-cd)pyrene	260		0.41	3.4	ug/Kg
53-70-3	Dibenz(a,h)anthracene	79		0.41	3.4	ug/Kg
191-24-2	Benzo(g,h,i)perylene	290		0.41	3.4	ug/Kg
SURROGATES						
4165-60-0	Nitrobenzene-d5	7.52		30 - 150	75%	SPK: 10
321-60-8	2-Fluorobiphenyl	8.98		19 - 182	90%	SPK: 10
1718-51-0	Terphenyl-d14	10.2		24 - 191	102%	SPK: 10
INTERNAL STANDARDS						
3855-82-1	1,4-Dichlorobenzene-d4	50373	8.99			
1146-65-2	Naphthalene-d8	199253	11.16			
15067-26-2	Acenaphthene-d10	122201	14.14			
1517-22-2	Phenanthrene-d10	216111	16.64			
1719-03-5	Chrysene-d12	211601	21.22			
1520-96-3	Perylene-d12	202137	25.39			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.			Date Collected:	10/19/11
Project:	CTO WE63			Date Received:	10/20/11
Client Sample ID:	FT-SB411-0002			SDG No.:	C4270
Lab Sample ID:	C4270-18			Matrix:	SOIL
Analytical Method:	SW8270C			% Moisture:	2
Sample Wt/Vol:	30.09	Units:	g	Final Vol:	1000 uL
Soil Aliquot Vol:			uL	Test:	SVOC-PAH
Extraction Type :	SOXH	Decanted :	N	Level :	LOW
Injection Volume :	1	GPC Factor :	1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BG001266.D	1	10/20/11	10/25/11	PB58709

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	10/19/11
Project:	CTO WE63	Date Received:	10/20/11
Client Sample ID:	FT-SB408-1517	SDG No.:	C4270
Lab Sample ID:	C4270-19	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	16
Sample Wt/Vol:	30.05 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOC-PAH
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BG001267.D	1	10/20/11	10/25/11	PB58709

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
91-20-3	Naphthalene	1.95	U	0.48	3.9	ug/Kg
208-96-8	Acenaphthylene	1.95	U	0.48	3.9	ug/Kg
83-32-9	Acenaphthene	1.95	U	0.48	3.9	ug/Kg
86-73-7	Fluorene	590		0.48	3.9	ug/Kg
85-01-8	Phenanthrene	920		0.48	3.9	ug/Kg
120-12-7	Anthracene	40		0.48	3.9	ug/Kg
206-44-0	Fluoranthene	390		0.48	3.9	ug/Kg
129-00-0	Pyrene	350		0.48	3.9	ug/Kg
56-55-3	Benzo(a)anthracene	130		0.48	3.9	ug/Kg
218-01-9	Chrysene	160		0.48	3.9	ug/Kg
205-99-2	Benzo(b)fluoranthene	170		0.48	3.9	ug/Kg
207-08-9	Benzo(k)fluoranthene	56		0.48	3.9	ug/Kg
50-32-8	Benzo(a)pyrene	110		0.48	3.9	ug/Kg
193-39-5	Indeno(1,2,3-cd)pyrene	76		0.48	3.9	ug/Kg
53-70-3	Dibenz(a,h)anthracene	22		0.48	3.9	ug/Kg
191-24-2	Benzo(g,h,i)perylene	88		0.48	3.9	ug/Kg
SURROGATES						
4165-60-0	Nitrobenzene-d5	45.1	*	30 - 150	451%	SPK: 10
321-60-8	2-Fluorobiphenyl	9.1		19 - 182	91%	SPK: 10
1718-51-0	Terphenyl-d14	9.34		24 - 191	93%	SPK: 10
INTERNAL STANDARDS						
3855-82-1	1,4-Dichlorobenzene-d4	49737	8.99			
1146-65-2	Naphthalene-d8	175147	11.19			
15067-26-2	Acenaphthene-d10	118824	14.19			
1517-22-2	Phenanthrene-d10	166140	16.66			
1719-03-5	Chrysene-d12	187856	21.24			
1520-96-3	Perylene-d12	182712	25.46			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.			Date Collected:	10/19/11
Project:	CTO WE63			Date Received:	10/20/11
Client Sample ID:	FT-SB408-1517			SDG No.:	C4270
Lab Sample ID:	C4270-19			Matrix:	SOIL
Analytical Method:	SW8270C			% Moisture:	16
Sample Wt/Vol:	30.05	Units:	g	Final Vol:	1000 uL
Soil Aliquot Vol:			uL	Test:	SVOC-PAH
Extraction Type :	SOXH	Decanted :	N	Level :	LOW
Injection Volume :	1	GPC Factor :	1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BG001267.D	1	10/20/11	10/25/11	PB58709

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	10/19/11
Project:	CTO WE63	Date Received:	10/20/11
Client Sample ID:	FT-SB409-1315	SDG No.:	C4270
Lab Sample ID:	C4270-20	Matrix:	SOIL
Analytical Method:	SW8270C	% Moisture:	14
Sample Wt/Vol:	30.02 Units: g	Final Vol:	1000 uL
Soil Aliquot Vol:	uL	Test:	SVOC-PAH
Extraction Type :	SOXH Decanted : N	Level :	LOW
Injection Volume :	1 GPC Factor : 1.0	GPC Cleanup :	N PH : N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BG001268.D	1	10/20/11	10/25/11	PB58709

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
91-20-3	Naphthalene	1.9	U	0.46	3.8	ug/Kg
208-96-8	Acenaphthylene	1.9	U	0.46	3.8	ug/Kg
83-32-9	Acenaphthene	1.9	U	0.46	3.8	ug/Kg
86-73-7	Fluorene	300		0.46	3.8	ug/Kg
85-01-8	Phenanthrene	550		0.46	3.8	ug/Kg
120-12-7	Anthracene	28		0.46	3.8	ug/Kg
206-44-0	Fluoranthene	870		0.46	3.8	ug/Kg
129-00-0	Pyrene	740		0.46	3.8	ug/Kg
56-55-3	Benzo(a)anthracene	310		0.46	3.8	ug/Kg
218-01-9	Chrysene	350		0.46	3.8	ug/Kg
205-99-2	Benzo(b)fluoranthene	360		0.46	3.8	ug/Kg
207-08-9	Benzo(k)fluoranthene	130		0.46	3.8	ug/Kg
50-32-8	Benzo(a)pyrene	140		0.46	3.8	ug/Kg
193-39-5	Indeno(1,2,3-cd)pyrene	130		0.46	3.8	ug/Kg
53-70-3	Dibenz(a,h)anthracene	45		0.46	3.8	ug/Kg
191-24-2	Benzo(g,h,i)perylene	150		0.46	3.8	ug/Kg
SURROGATES						
4165-60-0	Nitrobenzene-d5	13.5		30 - 150	135%	SPK: 10
321-60-8	2-Fluorobiphenyl	8.45		19 - 182	85%	SPK: 10
1718-51-0	Terphenyl-d14	8.48		24 - 191	85%	SPK: 10
INTERNAL STANDARDS						
3855-82-1	1,4-Dichlorobenzene-d4	56463	9			
1146-65-2	Naphthalene-d8	211807	11.18			
15067-26-2	Acenaphthene-d10	128470	14.17			
1517-22-2	Phenanthrene-d10	185374	16.65			
1719-03-5	Chrysene-d12	196600	21.24			
1520-96-3	Perylene-d12	188320	25.45			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.			Date Collected:	10/19/11		
Project:	CTO WE63			Date Received:	10/20/11		
Client Sample ID:	FT-SB409-1315			SDG No.:	C4270		
Lab Sample ID:	C4270-20			Matrix:	SOIL		
Analytical Method:	SW8270C			% Moisture:	14		
Sample Wt/Vol:	30.02	Units:	g	Final Vol:	1000		uL
Soil Aliquot Vol:			uL	Test:	SVOC-PAH		
Extraction Type :	SOXH	Decanted :	N	Level :	LOW		
Injection Volume :	1	GPC Factor :	1.0	GPC Cleanup :	N	PH :	N/A

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
BG001268.D	1	10/20/11	10/25/11	PB58709

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Hit Summary Sheet
SW-846

SDG No.: C4270

Client: Tetra Tech NUS, Inc.

Sample ID	Client ID	Matrix	Parameter	Concentration	C	RDL	MDL	Units
Client ID :	**FT-SB402-0608**							
C4270-09	FT-SB402-0608	SOIL	Benzo(b)fluoranthene	1.400	J	3.4	0.41	ug/Kg
			Total Svoc :	**1.40**				
			Total Concentration:	**1.40**				
Client ID :	**FT-SB408-1517**							
C4270-19	FT-SB408-1517	SOIL	Fluorene	590.000		3.9	0.48	ug/Kg
C4270-19	FT-SB408-1517	SOIL	Phenanthrene	920.000		3.9	0.48	ug/Kg
C4270-19	FT-SB408-1517	SOIL	Anthracene	40.000		3.9	0.48	ug/Kg
C4270-19	FT-SB408-1517	SOIL	Fluoranthene	390.000		3.9	0.48	ug/Kg
C4270-19	FT-SB408-1517	SOIL	Pyrene	350.000		3.9	0.48	ug/Kg
C4270-19	FT-SB408-1517	SOIL	Benzo(a)anthracene	130.000		3.9	0.48	ug/Kg
C4270-19	FT-SB408-1517	SOIL	Chrysene	160.000		3.9	0.48	ug/Kg
C4270-19	FT-SB408-1517	SOIL	Benzo(b)fluoranthene	170.000		3.9	0.48	ug/Kg
C4270-19	FT-SB408-1517	SOIL	Benzo(k)fluoranthene	56.000		3.9	0.48	ug/Kg
C4270-19	FT-SB408-1517	SOIL	Benzo(a)pyrene	110.000		3.9	0.48	ug/Kg
C4270-19	FT-SB408-1517	SOIL	Indeno(1,2,3-cd)pyrene	76.000		3.9	0.48	ug/Kg
C4270-19	FT-SB408-1517	SOIL	Dibenz(a,h)anthracene	22.000		3.9	0.48	ug/Kg
C4270-19	FT-SB408-1517	SOIL	Benzo(g,h,i)perylene	88.000		3.9	0.48	ug/Kg
			Total Svoc :	**3,102.00**				
			Total Concentration:	**3,102.00**				
Client ID :	**FT-SB409-1315**							
C4270-20	FT-SB409-1315	SOIL	Fluorene	300.000		3.8	0.46	ug/Kg
C4270-20	FT-SB409-1315	SOIL	Phenanthrene	550.000		3.8	0.46	ug/Kg
C4270-20	FT-SB409-1315	SOIL	Anthracene	28.000		3.8	0.46	ug/Kg
C4270-20	FT-SB409-1315	SOIL	Fluoranthene	870.000		3.8	0.46	ug/Kg
C4270-20	FT-SB409-1315	SOIL	Pyrene	740.000		3.8	0.46	ug/Kg
C4270-20	FT-SB409-1315	SOIL	Benzo(a)anthracene	310.000		3.8	0.46	ug/Kg
C4270-20	FT-SB409-1315	SOIL	Chrysene	350.000		3.8	0.46	ug/Kg
C4270-20	FT-SB409-1315	SOIL	Benzo(b)fluoranthene	360.000		3.8	0.46	ug/Kg
C4270-20	FT-SB409-1315	SOIL	Benzo(k)fluoranthene	130.000		3.8	0.46	ug/Kg
C4270-20	FT-SB409-1315	SOIL	Benzo(a)pyrene	140.000		3.8	0.46	ug/Kg
C4270-20	FT-SB409-1315	SOIL	Indeno(1,2,3-cd)pyrene	130.000		3.8	0.46	ug/Kg
C4270-20	FT-SB409-1315	SOIL	Dibenz(a,h)anthracene	45.000		3.8	0.46	ug/Kg
C4270-20	FT-SB409-1315	SOIL	Benzo(g,h,i)perylene	150.000		3.8	0.46	ug/Kg
			Total Svoc :	**4,103.00**				
			Total Concentration:	**4,103.00**				
Client ID :	**FT-SB411-0002**							
C4270-18	FT-SB411-0002	SOIL	Naphthalene	11.000		3.4	0.41	ug/Kg
C4270-18	FT-SB411-0002	SOIL	Acenaphthylene	3.100	J	3.4	0.41	ug/Kg
C4270-18	FT-SB411-0002	SOIL	Acenaphthene	37.000		3.4	0.41	ug/Kg

CHEMTECH

Hit Summary Sheet
SW-846

SDG No.: C4270

Client: Tetra Tech NUS, Inc.

Sample ID	Client ID	Matrix	Parameter	Concentration	C	RDL	MDL	Units
C4270-18	FT-SB411-0002	SOIL	Fluorene	19.000		3.4	0.41	ug/Kg
C4270-18	FT-SB411-0002	SOIL	Phenanthrene	550.000		3.4	0.41	ug/Kg
C4270-18	FT-SB411-0002	SOIL	Anthracene	79.000		3.4	0.41	ug/Kg
C4270-18	FT-SB411-0002	SOIL	Fluoranthene	1,000.000		3.4	0.41	ug/Kg
C4270-18	FT-SB411-0002	SOIL	Pyrene	840.000		3.4	0.41	ug/Kg
C4270-18	FT-SB411-0002	SOIL	Benzo(a)anthracene	460.000		3.4	0.41	ug/Kg
C4270-18	FT-SB411-0002	SOIL	Chrysene	460.000		3.4	0.41	ug/Kg
C4270-18	FT-SB411-0002	SOIL	Benzo(b)fluoranthene	580.000		3.4	0.41	ug/Kg
C4270-18	FT-SB411-0002	SOIL	Benzo(k)fluoranthene	190.000		3.4	0.41	ug/Kg
C4270-18	FT-SB411-0002	SOIL	Benzo(a)pyrene	420.000		3.4	0.41	ug/Kg
C4270-18	FT-SB411-0002	SOIL	Indeno(1,2,3-cd)pyrene	260.000		3.4	0.41	ug/Kg
C4270-18	FT-SB411-0002	SOIL	Dibenz(a,h)anthracene	79.000		3.4	0.41	ug/Kg
C4270-18	FT-SB411-0002	SOIL	Benzo(g,h,i)perylene	290.000		3.4	0.41	ug/Kg
			Total Svoc :	**5,278.10**				
			Total Concentration:	**5,278.10**				

Client ID : FT-SB413-0002

C4270-14	FT-SB413-0002	SOIL	Naphthalene	5.800		3.6	0.43	ug/Kg
C4270-14	FT-SB413-0002	SOIL	Phenanthrene	12.000		3.6	0.43	ug/Kg
C4270-14	FT-SB413-0002	SOIL	Anthracene	2.900	J	3.6	0.43	ug/Kg
C4270-14	FT-SB413-0002	SOIL	Fluoranthene	18.000		3.6	0.43	ug/Kg
C4270-14	FT-SB413-0002	SOIL	Pyrene	21.000		3.6	0.43	ug/Kg
C4270-14	FT-SB413-0002	SOIL	Chrysene	13.000		3.6	0.43	ug/Kg
C4270-14	FT-SB413-0002	SOIL	Benzo(b)fluoranthene	18.000		3.6	0.43	ug/Kg
C4270-14	FT-SB413-0002	SOIL	Benzo(k)fluoranthene	6.500		3.6	0.43	ug/Kg
C4270-14	FT-SB413-0002	SOIL	Benzo(a)pyrene	13.000		3.6	0.43	ug/Kg
C4270-14	FT-SB413-0002	SOIL	Indeno(1,2,3-cd)pyrene	8.700		3.6	0.43	ug/Kg
C4270-14	FT-SB413-0002	SOIL	Dibenz(a,h)anthracene	2.900	J	3.6	0.43	ug/Kg
C4270-14	FT-SB413-0002	SOIL	Benzo(g,h,i)perylene	10.000		3.6	0.43	ug/Kg
			Total Svoc :	**131.80**				
			Total Concentration:	**131.80**				

CHEMTECH

Surrogate Summary

SW-846

SDG No.: C4270

Client: Tetra Tech NUS, Inc.

Analytical Method: EPA SW-846 8270

Lab Sample ID	Client ID	Parameter	Spike (PPM)	Result (PPM)	Recovery (%)	Qual	Limits (%) Low	Limits (%) High
C4270-01	FT-SB401-0608	Nitrobenzene-d5	10	6.89	69		30	150
		2-Fluorobiphenyl	10	7.96	80		19	182
		Terphenyl-d14	10	9.25	93		24	191
C4270-02	FT-SB406-0406	Nitrobenzene-d5	10	7.09	71		30	150
		2-Fluorobiphenyl	10	8.21	82		19	182
		Terphenyl-d14	10	9.66	97		24	191
C4270-03	FT-SB407-0608	Nitrobenzene-d5	10	8.43	84		30	150
		2-Fluorobiphenyl	10	9.57	96		19	182
		Terphenyl-d14	10	11.03	110		24	191
C4270-04MS	FT-SB407-0608MS	Nitrobenzene-d5	10	10.27	103		30	150
		2-Fluorobiphenyl	10	10.70	107		19	182
		Terphenyl-d14	10	12.66	127		24	191
C4270-05MSD	FT-SB407-0608MSD	Nitrobenzene-d5	10	7.47	75		30	150
		2-Fluorobiphenyl	10	8.06	81		19	182
		Terphenyl-d14	10	8.93	89		24	191
C4270-08	FT-SB403-0608	Nitrobenzene-d5	10	8.03	80		30	150
		2-Fluorobiphenyl	10	9.29	93		19	182
		Terphenyl-d14	10	10.60	106		24	191
C4270-09	FT-SB402-0608	Nitrobenzene-d5	10	8.32	83		30	150
		2-Fluorobiphenyl	10	9.51	95		19	182
		Terphenyl-d14	10	11.32	113		24	191
C4270-12	FT-SBDUP01-20111018	Nitrobenzene-d5	10	7.81	78		30	150
		2-Fluorobiphenyl	10	8.87	89		19	182
		Terphenyl-d14	10	10.22	102		24	191
C4270-13	FT-SB410-1416	Nitrobenzene-d5	10	7.59	76		30	150
		2-Fluorobiphenyl	10	8.78	88		19	182
		Terphenyl-d14	10	10.39	104		24	191
C4270-14	FT-SB413-0002	Nitrobenzene-d5	10	8.06	81		30	150
		2-Fluorobiphenyl	10	9.37	94		19	182
		Terphenyl-d14	10	10.60	106		24	191
C4270-15	FT-SB413-0810	Nitrobenzene-d5	10	8.48	85		30	150
		2-Fluorobiphenyl	10	9.97	100		19	182
		Terphenyl-d14	10	11.67	117		24	191
C4270-16	FT-SB412-0204	Nitrobenzene-d5	10	7.54	75		30	150
		2-Fluorobiphenyl	10	9.36	94		19	182
		Terphenyl-d14	10	10.99	110		24	191
C4270-17	FT-SB412-1214	Nitrobenzene-d5	10	6.62	66		30	150
		2-Fluorobiphenyl	10	7.88	79		19	182
		Terphenyl-d14	10	9.13	91		24	191
C4270-18	FT-SB411-0002	Nitrobenzene-d5	10	7.52	75		30	150
		2-Fluorobiphenyl	10	8.98	90		19	182
		Terphenyl-d14	10	10.15	102		24	191
C4270-19	FT-SB408-1517	Nitrobenzene-d5	10	45.13	451	*	30	150
		2-Fluorobiphenyl	10	9.10	91		19	182
		Terphenyl-d14	10	9.34	93		24	191
C4270-20	FT-SB409-1315	Nitrobenzene-d5	10	13.49	135		30	150
		2-Fluorobiphenyl	10	8.45	85		19	182
		Terphenyl-d14	10	8.48	85		24	191
PB58709B	PB58709B	Nitrobenzene-d5	10	7.88	79		30	150
		2-Fluorobiphenyl	10	9.32	93		19	182
		Terphenyl-d14	10	10.48	105		24	191
PB58709BS	PB58709BS	Nitrobenzene-d5	10	8.48	85		30	150

CHEMTECH

Surrogate Summary

SW-846

SDG No.: C4270

Client: Tetra Tech NUS, Inc.

Analytical Method: EPA SW-846 8270

Lab Sample ID	Client ID	Parameter	Spike (PPM)	Result (PPM)	Recovery (%)	Qual	Limits (%) Low	Limits (%) High
PB58709BS	PB58709BS	2-Fluorobiphenyl	10	9.35	94		19	182
		Terphenyl-d14	10	11.17	112		24	191

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DATA PACKAGE

GENERAL CHEMISTRY

PROJECT NAME : CTO WE63

TETRA TECH NUS, INC.

661 Anderson Drive

Pittsburgh, Pennsylvania - 15220-2745

Phone No: 4129218361

ORDER ID : C4270

ATTENTION : David Brayack

ACCREDITED IN ACCORDANCE WITH nelac

DoD ELAP

CHEMTECH 284 Sheffield Street, Mountainside, New Jersey 07092 Phone : 908 789 8900 Fax : 908 789 8922

Cover Page

Order ID : C4270

Project ID : CTO WE63

Client : Tetra Tech NUS, Inc.

Lab Sample Number	Client Sample Number
C4270-01	FT-SB401-0608
C4270-02	FT-SB406-0406
C4270-03	FT-SB407-0608
C4270-04	C4270-03MS
C4270-05	C4270-03MSD
C4270-06	FT-SB405-0204
C4270-07	FT-SB405-0608
C4270-08	FT-SB403-0608
C4270-09	FT-SB402-0608
C4270-10	FT-SB404-0305
C4270-11	FT-SB404-0608
C4270-12	FT-SBDUP01-20111018
C4270-13	FT-SB410-1416
C4270-14	FT-SB413-0002
C4270-15	FT-SB413-0810
C4270-16	FT-SB412-0204
C4270-17	FT-SB412-1214
C4270-18	FT-SB411-0002
C4270-19	FT-SB408-1517
C4270-20	FT-SB409-1315
C4270-21	FT-SBDUP02-20111019

I certify that the data package is in compliance with the terms and conditions of the contract,both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hard copy data package has been authorized by the laboratory manager or his designee, as verified by the following signature.

Signature : _____

NYDOH CERTIFICATION NO - 11376

NJDEP CERTIFICATION NO - 20012

Table of Contents

DATA SUMMARY 8

GENERAL CHEMISTRY DATA 29

ANALYTICAL RESULTS SUMMARY 30

QC RESULTS SUMMARY 38

RAW DATA 52

SHIPPING AND RECEIVING DOCUMENTATION 77

END OF ANALYTICAL RESULTS 84

CHEMTECH

CASE NARRATIVE

Tetra Tech NUS, Inc.
Project Name: CTO WE63
Project # N/A
Chemtech Project # C4270
Test Name: Cyanide,Hexavalent Chromium,Trivalent Chromium

A. Number of Samples and Date of Receipt:
21 Solid samples were received on 10/20/2011.

B. Parameters:
According to the Chain of Custody document, the following analyses were requested: Cyanide, Hexavalent Chromium, Mercury, Metals ICP-TAL, METALS-TAL, PCB Group1, SVOC-PAH, Trivalent Chromium and VOCMS Group1. This data package contains results for Cyanide,Hexavalent Chromium,Trivalent Chromium.

C. Analytical Techniques:
The analysis of Trivalent Chromium was based on method 6010B, the analysis of Hexavalent Chromium was based on method 7196A and The analysis of Cyanide was based on method 9012B.

D. QA/ QC Samples:
The Holding Times were met for all analysis.
The Blank Spike met requirements for all samples.
The Duplicate analysis met criteria for all samples except for Hexavalent Chromium. The result of the duplicate sample was below CRQL.
The Matrix Spike analysis met criteria for all samples.
The Matrix Spike Duplicate analysis met criteria for all samples.
The Blank analysis did not indicate the presence of lab contamination.
The Calibration met the requirements.

I certify that the data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. The laboratory manager or his designee, as verified by the following signature has authorized release of the data contained in this hard copy data package.

Signature_____

I Mildred V. Reyes, as the designated Quality Assurance ~~Officer~~ Supervisor, hereby attest that all electronic deliverables have been thoroughly reviewed and are in agreement with the associated hardcopy data. The enclosed electronic files have been reviewed for accuracy (including significant figures), completeness and format. The laboratory will be responsible for any labor time necessary to correct enclosed electronic deliverables that have been found to be in error. I can be reached at (908) 789-8900 if there are any questions or problems with the enclosed electronic deliverables.

Signature: Mildred V Reyes Title: QA/QC Supervisor Date: 11/21/11

CHEMTECH

284 Sheffield Street Mountainside NJ 07092
Tel. 908-789-8900 Fax: 908-789-8922

DATA REPORTING QUALIFIERS- INORGANIC

For reporting results, the following " Result Qualifiers" are used:

J	Indicates the reported value was obtained from a reading that was less than the Contract Required Detection Limit (CRDL), but greater than or equal to the Instrument Detection Limit (IDL).
U	Indicates the analyte was analyzed for, but not detected.
ND	Indicates the analyte was analyzed for, but not detected.
E	Indicates the reported value is estimated because of the presence of interference.
M	Indicates Duplicate injection precision is not met.
N	Indicates spiked sample recovery is not within control limits.
S	Indicates the reported value was determined by the Method of Standard Addition (MSA).
*	Indicates the duplicate analysis is not within control limits.
+	Indicates correlation coefficient for the MSA is less than 0.995.
D	Indicates the reported value is from a secondary analysis with a dilution factor. The original analysis exceeded the calibration range.
M	Method qualifiers **"P"** for ICP instrument **"PM"** for ICP when Microwave Digestion is used **"CV"** for Manual Cold Vapor AA **"AV"** for automated Cold Vapor AA **"CA"** for MIDI-Distillation Spectrophotometer **"AS"** for Semi –Automated Spectrophotometer **"C"** for Manual Spectrophotometer **"T"** for Titrimetric analysis **"NR"** for analyte not required to be analyzed
OR	**Indicates the analyte 's concentration exceeds the calibrated range of the instrument for that specific analysis.**

APPENDIX A

QA REVIEW GENERAL DOCUMENTATION

Project #:_C4270_____

Completed

For thorough review, the report must have the following:

GENERAL:

Are all original paperwork present (chain of custody, record of communication, airbill, sample management lab chronicle, login page)	___✓_____
Check chain-of-custody for proper relinquish/return of samples	____✓_____
Is the chain of custody signed and complete	____✓_____
Check internal chain-of-custody for proper relinquish/return of samples /sample extracts	_____✓____
Collect information for each project id from server. Were all requirements followed	_____✓_____

COVER PAGE:

Do numbers of samples correspond to the number of samples in the Chain of Custody and on login page	___✓_____
Do lab numbers and client Ids on cover page agree with the Chain of Custody	____✓_____

CHAIN OF CUSTODY:

Do requested analyses on Chain of Custody agree with form I results	___✓_____
Do requested analyses on Chain of Custody agree with the log-in page	____✓_____
Were the correct method log-in for analysis according to the Analytical Request and Chain of Custody	____✓_____
Were the samples received within hold time	____✓_____
Were any problems found with the samples at arrival recorded in the Sample Management Laboratory Chronicle	____✓_____

ANALYTICAL:

Was method requirement followed?	_____✓_____
Was client requirement followed?	____✓_____
Does the case narrative summarize all QC failure?	_____✓_____
All runlogs reviewed for manual integration requirements	_____NA_____
All manual calculations and /or hand notations verified	_____✓_____

1st Level QA Review Signature:__ _____ Date:__11/21/11_____

2nd Level QA Review Signature:_____ Date:_____

DATA SUMMARY

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	10/18/11
Project:	CTO WE63	Date Received:	10/20/11
Client Sample ID:	FT-SB401-0608	SDG No.:	C4270
Lab Sample ID:	C4270-01	Matrix:	SOIL
		% Solid:	92.9

Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
Cyanide	0.269	U	1	0.035	0.269	mg/Kg	10/24/11	10/27/11	9012B
Hexavalent Chromium	0.425	U	1	0.085	0.425	mg/Kg	10/27/11	10/27/11	7196A
Trivalent Chromium	4.43		1	0.108	0.108	mg/Kg	10/27/11	10/27/11	6010B

Comments:

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	10/18/11
Project:	CTO WE63	Date Received:	10/20/11
Client Sample ID:	FT-SB406-0406	SDG No.:	C4270
Lab Sample ID:	C4270-02	Matrix:	SOIL
		% Solid:	96.4

Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
Cyanide	0.259	U	1	0.034	0.259	mg/Kg	10/24/11	10/27/11	9012B
Hexavalent Chromium	0.412	U	1	0.082	0.412	mg/Kg	10/27/11	10/27/11	7196A
Trivalent Chromium	1.59		1	0.104	0.104	mg/Kg	10/27/11	10/27/11	6010B

Comments:

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	10/18/11
Project:	CTO WE63	Date Received:	10/20/11
Client Sample ID:	FT-SB407-0608	SDG No.:	C4270
Lab Sample ID:	C4270-03	Matrix:	SOIL
		% Solid:	92.2

Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
Cyanide	0.271	U	1	0.036	0.271	mg/Kg	10/24/11	10/27/11	9012B
Hexavalent Chromium	0.09	J	1	0.087	0.434	mg/Kg	10/27/11	10/27/11	7196A
Trivalent Chromium	5.78		1	0.109	0.109	mg/Kg	10/27/11	10/27/11	6010B

Comments:

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	10/18/11
Project:	CTO WE63	Date Received:	10/20/11
Client Sample ID:	FT-SB403-0608	SDG No.:	C4270
Lab Sample ID:	C4270-08	Matrix:	SOIL
		% Solid:	96.2

Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
Cyanide	0.26	U	1	0.034	0.26	mg/Kg	10/24/11	10/27/11	9012B
Hexavalent Chromium	0.409	U	1	0.082	0.409	mg/Kg	10/27/11	10/27/11	7196A
Trivalent Chromium	1.06		1	0.104	0.104	mg/Kg	10/27/11	10/27/11	6010B

Comments:

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	10/19/11
Project:	CTO WE63	Date Received:	10/20/11
Client Sample ID:	FT-SB402-0608	SDG No.:	C4270
Lab Sample ID:	C4270-09	Matrix:	SOIL
		% Solid:	97.3

Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
Cyanide	0.256	U	1	0.034	0.256	mg/Kg	10/24/11	10/27/11	9012B
Hexavalent Chromium	0.406	U	1	0.081	0.406	mg/Kg	10/27/11	10/27/11	7196A
Trivalent Chromium	1.63		1	0.103	0.103	mg/Kg	10/27/11	10/27/11	6010B

Comments:

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	10/18/11
Project:	CTO WE63	Date Received:	10/20/11
Client Sample ID:	FT-SBDUP01-20111018	SDG No.:	C4270
Lab Sample ID:	C4270-12	Matrix:	SOIL
		% Solid:	96.3

Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
Cyanide	0.259	U	1	0.034	0.259	mg/Kg	10/24/11	10/27/11	9012B
Hexavalent Chromium	0.412	U	1	0.082	0.412	mg/Kg	10/27/11	10/27/11	7196A
Trivalent Chromium	2.71		1	0.104	0.104	mg/Kg	10/27/11	10/27/11	6010B

Comments:

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	10/19/11
Project:	CTO WE63	Date Received:	10/20/11
Client Sample ID:	FT-SB413-0002	SDG No.:	C4270
Lab Sample ID:	C4270-14	Matrix:	SOIL
		% Solid:	92.1

Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
Cyanide	0.038	J	1	0.036	0.271	mg/Kg	10/24/11	10/27/11	9012B
Hexavalent Chromium	0.434	U	1	0.087	0.434	mg/Kg	10/27/11	10/27/11	7196A
Trivalent Chromium	3.49		1	0.109	0.109	mg/Kg	10/27/11	10/27/11	6010B

Comments:

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range

CHEMTECH

Method Detection Limits

Client: Tetra Tech NUS, Inc. **SDG No.:** C4270

Project: CTO WE63

Analyte	Units	MDL	RDL
Method: 6010B/Calc- Trivalent Chromium		**MDL Date: 01/15/2006**	
Matrix Category: SOLIDS			
Trivalent Chromium	mg/Kg	0.10	0.10
Method: 7196A Hexavalent Chromium		**MDL Date: 01/15/2006**	
Matrix Category: SOLIDS			
Hexavalent Chromium	mg/Kg	0.080	0.400
Method: 9012B Cyanide		**MDL Date: 01/15/2006**	
Matrix Category: SOLIDS			
Cyanide	mg/Kg	0.033	0.250

CHEMTECH

Initial and Continuing Calibration Verification

Client:	Tetra Tech NUS, Inc.	**SDG No.:**	C4270
Project:	CTO WE63	**RunNo.:**	LB57515

Analyte		Units	Result	True Value	% Recovery	Acceptance Window (%R)	Analysis Date
Sample ID:	CCV1						
Cyanide		mg/L	0.24	0.25	96	90-110	10/27/2011
Sample ID:	CCV2						
Cyanide		mg/L	0.25	0.25	100	90-110	10/27/2011
Sample ID:	CCV3						
Cyanide		mg/L	0.24	0.25	96	90-110	10/27/2011
Sample ID:	ICVPB58779						
Cyanide		mg/L	0.10	0.10	100	85-115	10/27/2011

CHEMTECH

Initial and Continuing Calibration Verification

Client:	Tetra Tech NUS, Inc.	**SDG No.:**	C4270
Project:	CTO WE63	**RunNo.:**	LB57528

Analyte	Units	Result	True Value	% Recovery	Acceptance Window (%R)	Analysis Date
Sample ID: CCV1						
Hexavalent Chromium	mg/L	0.51	0.50	102	90-110	10/27/2011
Sample ID: CCV2						
Hexavalent Chromium	mg/L	0.51	0.50	102	90-110	10/27/2011
Sample ID: CCV3						
Hexavalent Chromium	mg/L	0.51	0.50	102	90-110	10/27/2011
Sample ID: CCV4						
Hexavalent Chromium	mg/L	0.51	0.50	102	90-110	10/27/2011
Sample ID: ICV1						
Hexavalent Chromium	mg/L	0.52	0.50	104	90-110	10/27/2011

CHEMTECH

Initial and Continuing Calibration Blank Summary

Client:	Tetra Tech NUS, Inc.	**SDG No.:**	C4270
Project:	CTO WE63	**RunNo.:**	LB57515

Analyte		Units	Result	Acceptance Limits	Conc Qual	RDL	Analysis Date
Sample ID:	CCB1						
Cyanide		mg/L	< 0.000	+/-0.005	U	0.005	10/27/2011
Sample ID:	CCB2						
Cyanide		mg/L	< 0.000	+/-0.005	U	0.005	10/27/2011
Sample ID:	CCB3						
Cyanide		mg/L	< 0.001	+/-0.005	U	0.005	10/27/2011
Sample ID:	ICB1						
Cyanide		mg/L	< 0.001	+/-0.005	U	0.005	10/27/2011

CHEMTECH

Initial and Continuing Calibration Blank Summary

Client:	Tetra Tech NUS, Inc.	**SDG No.:**	C4270
Project:	CTO WE63	**RunNo.:**	LB57528

Analyte	Units	Result	Acceptance Limits	Conc Qual	RDL	Analysis Date
Sample ID: CCB1						
Hexavalent Chromium	mg/L	< 0.000	+/-0.010	U	0.010	10/27/2011
Sample ID: CCB2						
Hexavalent Chromium	mg/L	< 0.000	+/-0.010	U	0.010	10/27/2011
Sample ID: CCB3						
Hexavalent Chromium	mg/L	< 0.000	+/-0.010	U	0.010	10/27/2011
Sample ID: CCB4						
Hexavalent Chromium	mg/L	< 0.000	+/-0.010	U	0.010	10/27/2011
Sample ID: ICB1						
Hexavalent Chromium	mg/L	< 0.000	+/-0.010	U	0.010	10/27/2011

CHEMTECH

Preparation Blank Summary

Client: Tetra Tech NUS, Inc. **SDG No.:** C4270

Project: CTO WE63

Analyte	Units	Result	Acceptance Limits	Conc Qual	RDL	Analysis Date
Sample ID: LB57515BLS						
Cyanide	mg/Kg	< 0.250	+/-0.250	U	0.250	10/27/2011
Sample ID: LB57528BLS						
Hexavalent Chromium	mg/Kg	< 0.400	+/-0.400	U	0.400	10/27/2011

CHEMTECH

Matrix Spike Summary

Client: Tetra Tech NUS, Inc.

SDG No.: C4270

Project: CTO WE63

Sample ID: C4270-03

Client ID: FT-SB407-0608S

Percent Solids for Spike Sample: 92.2

Analyte	Units	Acceptance Limit %R	Spiked Result	C	Sample Result	C	Spike Added	Dilution Factor	% Rec	Qual	Analysis Date
Hexavalent Chromium	mg/Kg	75-125	41.00		0.09	J	43.38	2	94.30		10/27/2011
Hexavalent Chromium	mg/Kg	75-125	1300.00		0.09	J	1353.00	40	96.07		10/27/2011
Hexavalent Chromium	mg/Kg	85-115	38.00		0.09	J	43.38	2	87.4		10/27/2011

CHEMTECH

Matrix Spike Summary

Client: Tetra Tech NUS, Inc.
SDG No.: C4270
Project: CTO WE63
Sample ID: C4270-03
Client ID: FT-SB407-0608S
Percent Solids for Spike Sample: 92.2

Analyte	Units	Acceptance Limit %R	Spiked Result	C	Sample Result	C	Spike Added	Dilution Factor	% Rec	Qual	Analysis Date
Cyanide	mg/Kg	48-158	2.240		0.036	U	2.16	1	103		10/27/2011

CHEMTECH

Matrix Spike Summary

Client: Tetra Tech NUS, Inc.
SDG No.: C4270
Project: CTO WE63
Sample ID: C4270-03
Client ID: FT-SB407-0608SD
Percent Solids for Spike Sample: 92.2

Analyte	Units	Acceptance Limit %R	Spiked Result	C	Sample Result	C	Spike Added	Dilution Factor	% Rec	Qual	Analysis Date
Cyanide	mg/Kg	48-158	2.240		0.036	U	2.16	1	103.0		10/27/2011

CHEMTECH

Duplicate Sample Summary

Client: Tetra Tech NUS, Inc.
Project: CTO WE63
Client ID: FT-SB407-0608D

SDG No.: C4270
Sample ID: C4270-03
Percent Solids for Spike Sample: 92.2

Analyte	Units	Acceptance Limit	Sample Result	C	Duplicate Result	C	Dilution Factor	RPD/ AD	Qual	Analysis Date
Cyanide	mg/Kg	+/-20	0.036	U	0.036	U	1	0		10/27/2011
Hexavalent Chromium	mg/Kg	+/-20	0.09	U	0.09	J	1	200.0		10/27/2011

CHEMTECH

Duplicate Sample Summary

Client:	Tetra Tech NUS, Inc.	**SDG No.:**	C4270
Project:	CTO WE63	**Sample ID:**	C4270-03
Client ID:	FT-SB407-0608SD	**Percent Solids for Spike Sample:**	92.2

Analyte	Units	Acceptance Limit	Sample Result	Duplicate Result	C	Dilution Factor	RPD/ AD	Qual	Analysis Date
Cyanide	**mg/Kg**	**+/-20**	**2.24**	**2.240**		**1**	**0**		**10/27/2011**

CHEMTECH

Laboratory Control Sample Summary

Client: Tetra Tech NUS, Inc. **SDG No.:** C4270

Project: CTO WE63

Analyte		Units	True Value	Result	C	% Recovery	Dilution Factor	Acceptance Limit %R	Analysis Date
Sample ID	**LB57515BSS**								
Cyanide		**mg/Kg**	**10.00**	**8.82**		**88**	**1**	**80-110**	**10/27/2011**

CHEMTECH

Laboratory Control Sample Summary

Client: Tetra Tech NUS, Inc. **SDG No.:** C4270

Project: CTO WE63

Analyte	Units	True Value	Result	C	% Recovery	Dilution Factor	Acceptance Limit %R	Analysis Date
Sample ID LB57528BSS								
Hexavalent Chromium	**mg/Kg**	**20.00**	**20.90**		**105**	**1**	**80-120**	**10/27/2011**

CHEMTECH

GENERAL CHEMISTRY DATA

ANALYTICAL RESULTS SUMMARY

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	10/18/11
Project:	CTO WE63	Date Received:	10/20/11
Client Sample ID:	FT-SB401-0608	SDG No.:	C4270
Lab Sample ID:	C4270-01	Matrix:	SOIL
		% Solid:	92.9

Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
Cyanide	0.269	U	1	0.035	0.269	mg/Kg	10/24/11	10/27/11	9012B
Hexavalent Chromium	0.425	U	1	0.085	0.425	mg/Kg	10/27/11	10/27/11	7196A
Trivalent Chromium	4.43		1	0.108	0.108	mg/Kg	10/27/11	10/27/11	6010B

Comments:

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	10/18/11
Project:	CTO WE63	Date Received:	10/20/11
Client Sample ID:	FT-SB406-0406	SDG No.:	C4270
Lab Sample ID:	C4270-02	Matrix:	SOIL
		% Solid:	96.4

Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
Cyanide	0.259	U	1	0.034	0.259	mg/Kg	10/24/11	10/27/11	9012B
Hexavalent Chromium	0.412	U	1	0.082	0.412	mg/Kg	10/27/11	10/27/11	7196A
Trivalent Chromium	1.59		1	0.104	0.104	mg/Kg	10/27/11	10/27/11	6010B

Comments:

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	10/18/11
Project:	CTO WE63	Date Received:	10/20/11
Client Sample ID:	FT-SB407-0608	SDG No.:	C4270
Lab Sample ID:	C4270-03	Matrix:	SOIL
		% Solid:	92.2

Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
Cyanide	0.271	U	1	0.036	0.271	mg/Kg	10/24/11	10/27/11	9012B
Hexavalent Chromium	0.09	J	1	0.087	0.434	mg/Kg	10/27/11	10/27/11	7196A
Trivalent Chromium	5.78		1	0.109	0.109	mg/Kg	10/27/11	10/27/11	6010B

Comments:

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	10/18/11
Project:	CTO WE63	Date Received:	10/20/11
Client Sample ID:	FT-SB403-0608	SDG No.:	C4270
Lab Sample ID:	C4270-08	Matrix:	SOIL
		% Solid:	96.2

Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
Cyanide	0.26	U	1	0.034	0.26	mg/Kg	10/24/11	10/27/11	9012B
Hexavalent Chromium	0.409	U	1	0.082	0.409	mg/Kg	10/27/11	10/27/11	7196A
Trivalent Chromium	1.06		1	0.104	0.104	mg/Kg	10/27/11	10/27/11	6010B

Comments:

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	10/19/11
Project:	CTO WE63	Date Received:	10/20/11
Client Sample ID:	FT-SB402-0608	SDG No.:	C4270
Lab Sample ID:	C4270-09	Matrix:	SOIL
		% Solid:	97.3

Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
Cyanide	0.256	U	1	0.034	0.256	mg/Kg	10/24/11	10/27/11	9012B
Hexavalent Chromium	0.406	U	1	0.081	0.406	mg/Kg	10/27/11	10/27/11	7196A
Trivalent Chromium	1.63		1	0.103	0.103	mg/Kg	10/27/11	10/27/11	6010B

Comments:

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	10/18/11
Project:	CTO WE63	Date Received:	10/20/11
Client Sample ID:	FT-SBDUP01-20111018	SDG No.:	C4270
Lab Sample ID:	C4270-12	Matrix:	SOIL
		% Solid:	96.3

Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
Cyanide	0.259	U	1	0.034	0.259	mg/Kg	10/24/11	10/27/11	9012B
Hexavalent Chromium	0.412	U	1	0.082	0.412	mg/Kg	10/27/11	10/27/11	7196A
Trivalent Chromium	2.71		1	0.104	0.104	mg/Kg	10/27/11	10/27/11	6010B

Comments:

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	10/19/11
Project:	CTO WE63	Date Received:	10/20/11
Client Sample ID:	FT-SB413-0002	SDG No.:	C4270
Lab Sample ID:	C4270-14	Matrix:	SOIL
		% Solid:	92.1

Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
Cyanide	0.038	J	1	0.036	0.271	mg/Kg	10/24/11	10/27/11	9012B
Hexavalent Chromium	0.434	U	1	0.087	0.434	mg/Kg	10/27/11	10/27/11	7196A
Trivalent Chromium	3.49		1	0.109	0.109	mg/Kg	10/27/11	10/27/11	6010B

Comments:

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range

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DATA PACKAGE

METALS

PROJECT NAME : CTO WE63

TETRA TECH NUS, INC.

661 Anderson Drive

Pittsburgh, Pennsylvania - 15220-2745

Phone No: 4129218361

ORDER ID : C4270

ATTENTION : David Brayack

ACCREDITED IN ACCORDANCE WITH nelac

DoD ELAP

CHEMTECH 284 Sheffield Street, Mountainside, New Jersey 07092 Phone : 908 789 8900 Fax : 908 789 8922

Cover Page

Order ID : C4270

Project ID : CTO WE63

Client : Tetra Tech NUS, Inc.

Lab Sample Number	Client Sample Number
C4270-01	FT-SB401-0608
C4270-02	FT-SB406-0406
C4270-03	FT-SB407-0608
C4270-04	C4270-03MS
C4270-05	C4270-03MSD
C4270-06	FT-SB405-0204
C4270-07	FT-SB405-0608
C4270-08	FT-SB403-0608
C4270-09	FT-SB402-0608
C4270-10	FT-SB404-0305
C4270-11	FT-SB404-0608
C4270-12	FT-SBDUP01-20111018
C4270-13	FT-SB410-1416
C4270-14	FT-SB413-0002
C4270-15	FT-SB413-0810
C4270-16	FT-SB412-0204
C4270-17	FT-SB412-1214
C4270-18	FT-SB411-0002
C4270-19	FT-SB408-1517
C4270-20	FT-SB409-1315
C4270-21	FT-SBDUP02-20111019

I certify that the data package is in compliance with the terms and conditions of the contract,both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hard copy data package has been authorized by the laboratory manager or his designee, as verified by the following signature.

Signature : _____

NYDOH CERTIFICATION NO - 11376

NJDEP CERTIFICATION NO - 20012

Table of Contents

DATA SUMMARY 8

METALS DATA 58

METALS SAMPLE DATA 59

METALS CALIBRATION DATA 60

METALS QC DATA 72

METALS PREPARATION & INSTRUMENT DATA 89

METALS RAW DATA 105

SHIPPING AND RECEIVING DOCUMENTATION 398

END OF ANALYTICAL RESULTS 405

CHEMTECH

CASE NARRATIVE

Tetra Tech NUS, Inc.
Project Name: CTO WE63
Project # N/A
Chemtech Project # C4270
Test Name: Mercury,Metals ICP-TAL

A. Number of Samples and Date of Receipt:
21 Solid samples were received on 10/20/2011.

B. Parameters:
According to the Chain of Custody document, the following analyses were requested: Cyanide, Hexavalent Chromium, Mercury, Metals ICP-TAL, METALS-TAL, PCB Group1, SVOC-PAH, Trivalent Chromium and VOCMS Group1. This data package contains results for Mercury,Metals ICP-TAL.

C. Analytical Techniques:
The analysis of Metals ICP-TAL was based on method 6010B, digestion based on method 3050 (soils). The analysis of Mercury was based on method 7471 and digestion was based on method 7471 (soils).

D. QA/ QC Samples:
The Holding Times were met for all analysis.
The Blank Spike met requirements for all samples.
The Duplicate analysis met criteria for all samples.
The Matrix Spike analysis met criteria for all samples.
The Matrix Spike Duplicate analysis met criteria for all samples.
The Blank analysis did not indicate the presence of lab contamination.
The Calibration met the requirements.
The Serial Dilution met the acceptable requirements.

E. Additional Comments:
Copper (156.0%) did not meet requirements for CRI.

I certify that the data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. The laboratory manager or his designee, as verified by the following signature has authorized release of the data contained in this hard copy data package.

Signature_____

I Mildred V. Reyes, as the designated Quality Assurance ~~Officer~~ Supervisor, hereby attest that all electronic deliverables have been thoroughly reviewed and are in agreement with the associated hardcopy data. The enclosed electronic files have been reviewed for accuracy (including significant figures), completeness and format. The laboratory will be responsible for any labor time necessary to correct enclosed electronic deliverables that have been found to be in error. I can be reached at (908) 789-8900 if there are any questions or problems with the enclosed electronic deliverables.

Signature: Mildred V Reyes Title: QA/QC Supervisor Date: 11/21/11

CHEMTECH

284 Sheffield Street Mountainside NJ 07092
Tel. 908-789-8900 Fax: 908-789-8922

DATA REPORTING QUALIFIERS- INORGANIC

For reporting results, the following " Result Qualifiers" are used:

J	Indicates the reported value was obtained from a reading that was less than the Contract Required Detection Limit (CRDL), but greater than or equal to the Instrument Detection Limit (IDL).
U	Indicates the analyte was analyzed for, but not detected.
ND	Indicates the analyte was analyzed for, but not detected.
E	Indicates the reported value is estimated because of the presence of interference.
M	Indicates Duplicate injection precision is not met.
N	Indicates spiked sample recovery is not within control limits.
S	Indicates the reported value was determined by the Method of Standard Addition (MSA).
*	Indicates the duplicate analysis is not within control limits.
+	Indicates correlation coefficient for the MSA is less than 0.995.
D	Indicates the reported value is from a secondary analysis with a dilution factor. The original analysis exceeded the calibration range.
M	Method qualifiers **"P"** for ICP instrument **"PM"** for ICP when Microwave Digestion is used **"CV"** for Manual Cold Vapor AA **"AV"** for automated Cold Vapor AA **"CA"** for MIDI-Distillation Spectrophotometer **"AS"** for Semi –Automated Spectrophotometer **"C"** for Manual Spectrophotometer **"T"** for Titrimetric analysis **"NR"** for analyte not required to be analyzed
OR	**Indicates the analyte 's concentration exceeds the calibrated range of the instrument for that specific analysis.**

APPENDIX A

QA REVIEW GENERAL DOCUMENTATION

Project #:_C4270_____

Completed

For thorough review, the report must have the following:

GENERAL:

Are all original paperwork present (chain of custody, record of communication, airbill, sample management lab chronicle, login page)	___✓_____
Check chain-of-custody for proper relinquish/return of samples	____✓_____
Is the chain of custody signed and complete	____✓_____
Check internal chain-of-custody for proper relinquish/return of samples /sample extracts	_____✓____
Collect information for each project id from server. Were all requirements followed	_____✓_____

COVER PAGE:

Do numbers of samples correspond to the number of samples in the Chain of Custody and on login page	___✓_____
Do lab numbers and client Ids on cover page agree with the Chain of Custody	____✓_____

CHAIN OF CUSTODY:

Do requested analyses on Chain of Custody agree with form I results	___✓_____
Do requested analyses on Chain of Custody agree with the log-in page	____✓_____
Were the correct method log-in for analysis according to the Analytical Request and Chain of Custody	____✓_____
Were the samples received within hold time	____✓_____
Were any problems found with the samples at arrival recorded in the Sample Management Laboratory Chronicle	____✓_____

ANALYTICAL:

Was method requirement followed?	_____✓_____
Was client requirement followed?	____✓_____
Does the case narrative summarize all QC failure?	_____✓_____
All runlogs reviewed for manual integration requirements	_____NA_____
All manual calculations and /or hand notations verified	_____✓_____

1st Level QA Review Signature:__ _____ Date:__11/21/11_____

2nd Level QA Review Signature:_____ Date:_____

DATA SUMMARY

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	10/18/11
Project:	CTO WE63	Date Received:	10/20/11
Client Sample ID:	FT-SB401-0608	SDG No.:	C4270
Lab Sample ID:	C4270-01	Matrix:	SOIL
Level (low/med):	low	% Solid:	92.9

Cas	Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
7429-90-5	Aluminum	4260		1	0.837	4.98	mg/Kg	10/21/11	10/27/11	SW6010B
7440-36-0	Antimony	1.245	U	1	0.558	2.49	mg/Kg	10/21/11	10/27/11	SW6010B
7440-38-2	Arsenic	1.18		1	0.329	0.997	mg/Kg	10/21/11	10/27/11	SW6010B
7440-39-3	Barium	10.8		1	0.399	4.98	mg/Kg	10/21/11	10/27/11	SW6010B
7440-41-7	Beryllium	0.107	J	1	0.06	0.299	mg/Kg	10/21/11	10/27/11	SW6010B
7440-43-9	Cadmium	0.201	J	1	0.06	0.299	mg/Kg	10/21/11	10/27/11	SW6010B
7440-70-2	Calcium	75.3	J	1	1.07	99.7	mg/Kg	10/21/11	10/27/11	SW6010B
7440-47-3	Chromium	4.43		1	0.13	0.498	mg/Kg	10/21/11	10/27/11	SW6010B
7440-48-4	Cobalt	1.24	J	1	0.568	1.5	mg/Kg	10/21/11	10/27/11	SW6010B
7440-50-8	Copper	2.82		1	0.319	0.997	mg/Kg	10/21/11	10/27/11	SW6010B
7439-89-6	Iron	4380		1	1.33	4.98	mg/Kg	10/21/11	10/27/11	SW6010B
7439-92-1	Lead	2.66		1	0.12	0.598	mg/Kg	10/21/11	10/27/11	SW6010B
7439-95-4	Magnesium	501		1	4.56	99.7	mg/Kg	10/21/11	10/27/11	SW6010B
7439-96-5	Manganese	34.7		1	0.189	0.997	mg/Kg	10/21/11	10/27/11	SW6010B
7439-97-6	Mercury	0.006	J	1	0.002	0.01	mg/Kg	10/21/11	10/24/11	SW7471A
7440-02-0	Nickel	2.18		1	0.458	1.99	mg/Kg	10/21/11	10/27/11	SW6010B
7440-09-7	Potassium	82.8	J	1	3.49	99.7	mg/Kg	10/21/11	10/27/11	SW6010B
7782-49-2	Selenium	0.55	J	1	0.409	0.997	mg/Kg	10/21/11	10/27/11	SW6010B
7440-22-4	Silver	0.249	U	1	0.15	0.498	mg/Kg	10/21/11	10/27/11	SW6010B
7440-23-5	Sodium	98.7	J	1	2.51	99.7	mg/Kg	10/21/11	10/27/11	SW6010B
7440-28-0	Thallium	0.995	U	1	0.269	1.99	mg/Kg	10/21/11	10/27/11	SW6010B
7440-62-2	Vanadium	7.35		1	0.588	1.99	mg/Kg	10/21/11	10/27/11	SW6010B
7440-66-6	Zinc	10.5		1	0.698	1.99	mg/Kg	10/21/11	10/27/11	SW6010B

Color Before:	Brown	Clarity Before:		Texture:	Medium
Color After:	Yellow	Clarity After:		Artifacts:	
Comments:	METALS-TAL				

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	10/18/11
Project:	CTO WE63	Date Received:	10/20/11
Client Sample ID:	FT-SB406-0406	SDG No.:	C4270
Lab Sample ID:	C4270-02	Matrix:	SOIL
Level (low/med):	low	% Solid:	96.4

Cas	Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
7429-90-5	Aluminum	600		1	0.641	3.81	mg/Kg	10/21/11	10/27/11	SW6010B
7440-36-0	Antimony	0.955	U	1	0.427	1.91	mg/Kg	10/21/11	10/27/11	SW6010B
7440-38-2	Arsenic	0.3815	U	1	0.252	0.763	mg/Kg	10/21/11	10/27/11	SW6010B
7440-39-3	Barium	1.62	J	1	0.305	3.81	mg/Kg	10/21/11	10/27/11	SW6010B
7440-41-7	Beryllium	0.1145	U	1	0.046	0.229	mg/Kg	10/21/11	10/27/11	SW6010B
7440-43-9	Cadmium	0.051	J	1	0.046	0.229	mg/Kg	10/21/11	10/27/11	SW6010B
7440-70-2	Calcium	33.8	J	1	0.816	76.3	mg/Kg	10/21/11	10/27/11	SW6010B
7440-47-3	Chromium	1.59		1	0.099	0.381	mg/Kg	10/21/11	10/27/11	SW6010B
7440-48-4	Cobalt	0.457	J	1	0.435	1.14	mg/Kg	10/21/11	10/27/11	SW6010B
7440-50-8	Copper	1.9		1	0.244	0.763	mg/Kg	10/21/11	10/27/11	SW6010B
7439-89-6	Iron	1040		1	1.01	3.81	mg/Kg	10/21/11	10/27/11	SW6010B
7439-92-1	Lead	1.09		1	0.092	0.458	mg/Kg	10/21/11	10/27/11	SW6010B
7439-95-4	Magnesium	69.8	J	1	3.49	76.3	mg/Kg	10/21/11	10/27/11	SW6010B
7439-96-5	Manganese	8.69		1	0.145	0.763	mg/Kg	10/21/11	10/27/11	SW6010B
7439-97-6	Mercury	0.0045	U	1	0.002	0.009	mg/Kg	10/21/11	10/24/11	SW7471A
7440-02-0	Nickel	0.424	J	1	0.351	1.53	mg/Kg	10/21/11	10/27/11	SW6010B
7440-09-7	Potassium	38.15	U	1	2.67	76.3	mg/Kg	10/21/11	10/27/11	SW6010B
7782-49-2	Selenium	0.3815	U	1	0.313	0.763	mg/Kg	10/21/11	10/27/11	SW6010B
7440-22-4	Silver	0.1905	U	1	0.114	0.381	mg/Kg	10/21/11	10/27/11	SW6010B
7440-23-5	Sodium	66.2	J	1	1.92	76.3	mg/Kg	10/21/11	10/27/11	SW6010B
7440-28-0	Thallium	0.765	U	1	0.206	1.53	mg/Kg	10/21/11	10/27/11	SW6010B
7440-62-2	Vanadium	2.24		1	0.45	1.53	mg/Kg	10/21/11	10/27/11	SW6010B
7440-66-6	Zinc	4.03		1	0.534	1.53	mg/Kg	10/21/11	10/27/11	SW6010B

Color Before:	Brown	Clarity Before:		Texture:	Medium
Color After:	Yellow	Clarity After:		Artifacts:	
Comments:	METALS-TAL				

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	10/18/11
Project:	CTO WE63	Date Received:	10/20/11
Client Sample ID:	FT-SB407-0608	SDG No.:	C4270
Lab Sample ID:	C4270-03	Matrix:	SOIL
Level (low/med):	low	% Solid:	92.2

Cas	Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
7429-90-5	Aluminum	5820		1	0.911	5.42	mg/Kg	10/21/11	10/27/11	SW6010B
7440-36-0	Antimony	1.355	U	1	0.607	2.71	mg/Kg	10/21/11	10/27/11	SW6010B
7440-38-2	Arsenic	1.58		1	0.358	1.08	mg/Kg	10/21/11	10/27/11	SW6010B
7440-39-3	Barium	9.66		1	0.434	5.42	mg/Kg	10/21/11	10/27/11	SW6010B
7440-41-7	Beryllium	0.125	J	1	0.065	0.325	mg/Kg	10/21/11	10/27/11	SW6010B
7440-43-9	Cadmium	0.185	J	1	0.065	0.325	mg/Kg	10/21/11	10/27/11	SW6010B
7440-70-2	Calcium	68.4	J	1	1.16	108	mg/Kg	10/21/11	10/27/11	SW6010B
7440-47-3	Chromium	5.87		1	0.141	0.542	mg/Kg	10/21/11	10/27/11	SW6010B
7440-48-4	Cobalt	1.14	J	1	0.618	1.63	mg/Kg	10/21/11	10/27/11	SW6010B
7440-50-8	Copper	2.84		1	0.347	1.08	mg/Kg	10/21/11	10/27/11	SW6010B
7439-89-6	Iron	4420		1	1.44	5.42	mg/Kg	10/21/11	10/27/11	SW6010B
7439-92-1	Lead	3.27		1	0.13	0.651	mg/Kg	10/21/11	10/27/11	SW6010B
7439-95-4	Magnesium	376		1	4.97	108	mg/Kg	10/21/11	10/27/11	SW6010B
7439-96-5	Manganese	19.1		1	0.206	1.08	mg/Kg	10/21/11	10/27/11	SW6010B
7439-97-6	Mercury	0.013		1	0.002	0.011	mg/Kg	10/21/11	10/24/11	SW7471A
7440-02-0	Nickel	2.11	J	1	0.499	2.17	mg/Kg	10/21/11	10/27/11	SW6010B
7440-09-7	Potassium	31.3	J	1	3.8	108	mg/Kg	10/21/11	10/27/11	SW6010B
7782-49-2	Selenium	0.54	U	1	0.445	1.08	mg/Kg	10/21/11	10/27/11	SW6010B
7440-22-4	Silver	0.271	U	1	0.163	0.542	mg/Kg	10/21/11	10/27/11	SW6010B
7440-23-5	Sodium	93.4	J	1	2.73	108	mg/Kg	10/21/11	10/27/11	SW6010B
7440-28-0	Thallium	1.085	U	1	0.293	2.17	mg/Kg	10/21/11	10/27/11	SW6010B
7440-62-2	Vanadium	9.26		1	0.64	2.17	mg/Kg	10/21/11	10/27/11	SW6010B
7440-66-6	Zinc	9.69		1	0.759	2.17	mg/Kg	10/21/11	10/27/11	SW6010B

Color Before:	Brown	Clarity Before:		Texture:	Medium
Color After:	Yellow	Clarity After:		Artifacts:	
Comments:	METALS-TAL				

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
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J = Estimated Value
B = Analyte Found in Associated Method Blank
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E = Value Exceeds Calibration Range
OR = Over Range

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	10/18/11
Project:	CTO WE63	Date Received:	10/20/11
Client Sample ID:	FT-SB403-0608	SDG No.:	C4270
Lab Sample ID:	C4270-08	Matrix:	SOIL
Level (low/med):	low	% Solid:	96.2

Cas	Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
7429-90-5	Aluminum	525		1	0.78	4.64	mg/Kg	10/21/11	10/27/11	SW6010B
7440-36-0	Antimony	1.16	U	1	0.52	2.32	mg/Kg	10/21/11	10/27/11	SW6010B
7440-38-2	Arsenic	0.383	J	1	0.306	0.928	mg/Kg	10/21/11	10/27/11	SW6010B
7440-39-3	Barium	1.75	J	1	0.371	4.64	mg/Kg	10/21/11	10/27/11	SW6010B
7440-41-7	Beryllium	0.139	U	1	0.056	0.278	mg/Kg	10/21/11	10/27/11	SW6010B
7440-43-9	Cadmium	0.139	U	1	0.056	0.278	mg/Kg	10/21/11	10/27/11	SW6010B
7440-70-2	Calcium	76.4	J	1	0.993	92.8	mg/Kg	10/21/11	10/27/11	SW6010B
7440-47-3	Chromium	1.06		1	0.121	0.464	mg/Kg	10/21/11	10/27/11	SW6010B
7440-48-4	Cobalt	0.695	U	1	0.529	1.39	mg/Kg	10/21/11	10/27/11	SW6010B
7440-50-8	Copper	1.9		1	0.297	0.928	mg/Kg	10/21/11	10/27/11	SW6010B
7439-89-6	Iron	814		1	1.23	4.64	mg/Kg	10/21/11	10/27/11	SW6010B
7439-92-1	Lead	0.809		1	0.111	0.557	mg/Kg	10/21/11	10/27/11	SW6010B
7439-95-4	Magnesium	69.7	J	1	4.25	92.8	mg/Kg	10/21/11	10/27/11	SW6010B
7439-96-5	Manganese	5.28		1	0.176	0.928	mg/Kg	10/21/11	10/27/11	SW6010B
7439-97-6	Mercury	0.005	U	1	0.002	0.01	mg/Kg	10/21/11	10/24/11	SW7471A
7440-02-0	Nickel	0.563	J	1	0.427	1.86	mg/Kg	10/21/11	10/27/11	SW6010B
7440-09-7	Potassium	46.4	U	1	3.25	92.8	mg/Kg	10/21/11	10/27/11	SW6010B
7782-49-2	Selenium	0.464	U	1	0.381	0.928	mg/Kg	10/21/11	10/27/11	SW6010B
7440-22-4	Silver	0.232	U	1	0.139	0.464	mg/Kg	10/21/11	10/27/11	SW6010B
7440-23-5	Sodium	113		1	2.34	92.8	mg/Kg	10/21/11	10/27/11	SW6010B
7440-28-0	Thallium	0.93	U	1	0.251	1.86	mg/Kg	10/21/11	10/27/11	SW6010B
7440-62-2	Vanadium	1.38	J	1	0.548	1.86	mg/Kg	10/21/11	10/27/11	SW6010B
7440-66-6	Zinc	4.75		1	0.65	1.86	mg/Kg	10/21/11	10/27/11	SW6010B

Color Before:	Brown	Clarity Before:		Texture:	Medium
Color After:	Yellow	Clarity After:		Artifacts:	
Comments:	METALS-TAL				

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
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D = Dilution

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	10/19/11
Project:	CTO WE63	Date Received:	10/20/11
Client Sample ID:	FT-SB402-0608	SDG No.:	C4270
Lab Sample ID:	C4270-09	Matrix:	SOIL
Level (low/med):	low	% Solid:	97.3

Cas	Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
7429-90-5	Aluminum	511		1	0.654	3.89	mg/Kg	10/21/11	10/27/11	SW6010B
7440-36-0	Antimony	0.975	U	1	0.436	1.95	mg/Kg	10/21/11	10/27/11	SW6010B
7440-38-2	Arsenic	0.783		1	0.257	0.779	mg/Kg	10/21/11	10/27/11	SW6010B
7440-39-3	Barium	1.39	J	1	0.311	3.89	mg/Kg	10/21/11	10/27/11	SW6010B
7440-41-7	Beryllium	0.117	U	1	0.047	0.234	mg/Kg	10/21/11	10/27/11	SW6010B
7440-43-9	Cadmium	0.057	J	1	0.047	0.234	mg/Kg	10/21/11	10/27/11	SW6010B
7440-70-2	Calcium	48.3	J	1	0.833	77.9	mg/Kg	10/21/11	10/27/11	SW6010B
7440-47-3	Chromium	1.63		1	0.101	0.389	mg/Kg	10/21/11	10/27/11	SW6010B
7440-48-4	Cobalt	0.585	U	1	0.444	1.17	mg/Kg	10/21/11	10/27/11	SW6010B
7440-50-8	Copper	1.7		1	0.249	0.779	mg/Kg	10/21/11	10/27/11	SW6010B
7439-89-6	Iron	1240		1	1.04	3.89	mg/Kg	10/21/11	10/27/11	SW6010B
7439-92-1	Lead	0.914		1	0.093	0.467	mg/Kg	10/21/11	10/27/11	SW6010B
7439-95-4	Magnesium	82.1		1	3.57	77.9	mg/Kg	10/21/11	10/27/11	SW6010B
7439-96-5	Manganese	9.97		1	0.148	0.779	mg/Kg	10/21/11	10/27/11	SW6010B
7439-97-6	Mercury	0.005	U	1	0.002	0.01	mg/Kg	10/21/11	10/25/11	SW7471A
7440-02-0	Nickel	0.583	J	1	0.358	1.56	mg/Kg	10/21/11	10/27/11	SW6010B
7440-09-7	Potassium	38.95	U	1	2.73	77.9	mg/Kg	10/21/11	10/27/11	SW6010B
7782-49-2	Selenium	0.3895	U	1	0.319	0.779	mg/Kg	10/21/11	10/27/11	SW6010B
7440-22-4	Silver	0.1945	U	1	0.117	0.389	mg/Kg	10/21/11	10/27/11	SW6010B
7440-23-5	Sodium	85.2		1	1.96	77.9	mg/Kg	10/21/11	10/27/11	SW6010B
7440-28-0	Thallium	0.78	U	1	0.21	1.56	mg/Kg	10/21/11	10/27/11	SW6010B
7440-62-2	Vanadium	2.3		1	0.459	1.56	mg/Kg	10/21/11	10/27/11	SW6010B
7440-66-6	Zinc	4.24		1	0.545	1.56	mg/Kg	10/21/11	10/27/11	SW6010B

Color Before:	Brown	Clarity Before:		Texture:	Medium
Color After:	Yellow	Clarity After:		Artifacts:	
Comments:	METALS-TAL				

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
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J = Estimated Value
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N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	10/18/11
Project:	CTO WE63	Date Received:	10/20/11
Client Sample ID:	FT-SBDUP01-20111018	SDG No.:	C4270
Lab Sample ID:	C4270-12	Matrix:	SOIL
Level (low/med):	low	% Solid:	96.3

Cas	Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
7429-90-5	Aluminum	584		1	0.772	4.59	mg/Kg	10/21/11	10/27/11	SW6010B
7440-36-0	Antimony	1.15	U	1	0.515	2.3	mg/Kg	10/21/11	10/27/11	SW6010B
7440-38-2	Arsenic	0.598	J	1	0.303	0.919	mg/Kg	10/21/11	10/27/11	SW6010B
7440-39-3	Barium	1.71	J	1	0.368	4.59	mg/Kg	10/21/11	10/27/11	SW6010B
7440-41-7	Beryllium	0.138	U	1	0.055	0.276	mg/Kg	10/21/11	10/27/11	SW6010B
7440-43-9	Cadmium	0.138	U	1	0.055	0.276	mg/Kg	10/21/11	10/27/11	SW6010B
7440-70-2	Calcium	80.3	J	1	0.983	91.9	mg/Kg	10/21/11	10/27/11	SW6010B
7440-47-3	Chromium	2.71		1	0.119	0.459	mg/Kg	10/21/11	10/27/11	SW6010B
7440-48-4	Cobalt	0.69	U	1	0.524	1.38	mg/Kg	10/21/11	10/27/11	SW6010B
7440-50-8	Copper	2.07		1	0.294	0.919	mg/Kg	10/21/11	10/27/11	SW6010B
7439-89-6	Iron	957		1	1.22	4.59	mg/Kg	10/21/11	10/27/11	SW6010B
7439-92-1	Lead	0.92		1	0.11	0.551	mg/Kg	10/21/11	10/27/11	SW6010B
7439-95-4	Magnesium	81.4	J	1	4.21	91.9	mg/Kg	10/21/11	10/27/11	SW6010B
7439-96-5	Manganese	5.34		1	0.175	0.919	mg/Kg	10/21/11	10/27/11	SW6010B
7439-97-6	Mercury	0.005	U	1	0.002	0.01	mg/Kg	10/21/11	10/24/11	SW7471A
7440-02-0	Nickel	0.522	J	1	0.423	1.84	mg/Kg	10/21/11	10/27/11	SW6010B
7440-09-7	Potassium	45.95	U	1	3.22	91.9	mg/Kg	10/21/11	10/27/11	SW6010B
7782-49-2	Selenium	0.4595	U	1	0.377	0.919	mg/Kg	10/21/11	10/27/11	SW6010B
7440-22-4	Silver	0.2295	U	1	0.138	0.459	mg/Kg	10/21/11	10/27/11	SW6010B
7440-23-5	Sodium	106		1	2.32	91.9	mg/Kg	10/21/11	10/27/11	SW6010B
7440-28-0	Thallium	0.92	U	1	0.248	1.84	mg/Kg	10/21/11	10/27/11	SW6010B
7440-62-2	Vanadium	2.26		1	0.542	1.84	mg/Kg	10/21/11	10/27/11	SW6010B
7440-66-6	Zinc	4.24		1	0.643	1.84	mg/Kg	10/21/11	10/27/11	SW6010B

Color Before:	Brown	Clarity Before:		Texture:	Medium
Color After:	Yellow	Clarity After:		Artifacts:	
Comments:	METALS-TAL				

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
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J = Estimated Value
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E = Value Exceeds Calibration Range
OR = Over Range

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	10/19/11
Project:	CTO WE63	Date Received:	10/20/11
Client Sample ID:	FT-SB413-0002	SDG No.:	C4270
Lab Sample ID:	C4270-14	Matrix:	SOIL
Level (low/med):	low	% Solid:	92.1

Cas	Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.
7429-90-5	Aluminum	3810		1	0.877	5.22	mg/Kg	10/21/11	10/27/11	SW6010B
7440-36-0	Antimony	1.305	U	1	0.585	2.61	mg/Kg	10/21/11	10/27/11	SW6010B
7440-38-2	Arsenic	0.826	J	1	0.345	1.04	mg/Kg	10/21/11	10/27/11	SW6010B
7440-39-3	Barium	7.63		1	0.418	5.22	mg/Kg	10/21/11	10/27/11	SW6010B
7440-41-7	Beryllium	0.085	J	1	0.063	0.313	mg/Kg	10/21/11	10/27/11	SW6010B
7440-43-9	Cadmium	0.147	J	1	0.063	0.313	mg/Kg	10/21/11	10/27/11	SW6010B
7440-70-2	Calcium	841		1	1.12	104	mg/Kg	10/21/11	10/27/11	SW6010B
7440-47-3	Chromium	3.49		1	0.136	0.522	mg/Kg	10/21/11	10/27/11	SW6010B
7440-48-4	Cobalt	0.642	J	1	0.595	1.57	mg/Kg	10/21/11	10/27/11	SW6010B
7440-50-8	Copper	3.27		1	0.334	1.04	mg/Kg	10/21/11	10/27/11	SW6010B
7439-89-6	Iron	3110		1	1.39	5.22	mg/Kg	10/21/11	10/27/11	SW6010B
7439-92-1	Lead	3.99		1	0.125	0.626	mg/Kg	10/21/11	10/27/11	SW6010B
7439-95-4	Magnesium	125		1	4.78	104	mg/Kg	10/21/11	10/27/11	SW6010B
7439-96-5	Manganese	17.2		1	0.198	1.04	mg/Kg	10/21/11	10/27/11	SW6010B
7439-97-6	Mercury	0.021		1	0.002	0.01	mg/Kg	10/21/11	10/24/11	SW7471A
7440-02-0	Nickel	1.74	J	1	0.48	2.09	mg/Kg	10/21/11	10/27/11	SW6010B
7440-09-7	Potassium	52	U	1	3.65	104	mg/Kg	10/21/11	10/27/11	SW6010B
7782-49-2	Selenium	0.52	U	1	0.428	1.04	mg/Kg	10/21/11	10/27/11	SW6010B
7440-22-4	Silver	0.261	U	1	0.157	0.522	mg/Kg	10/21/11	10/27/11	SW6010B
7440-23-5	Sodium	129		1	2.63	104	mg/Kg	10/21/11	10/27/11	SW6010B
7440-28-0	Thallium	1.045	U	1	0.282	2.09	mg/Kg	10/21/11	10/27/11	SW6010B
7440-62-2	Vanadium	5.6		1	0.616	2.09	mg/Kg	10/21/11	10/27/11	SW6010B
7440-66-6	Zinc	10.9		1	0.731	2.09	mg/Kg	10/21/11	10/27/11	SW6010B

Color Before:	Brown	Clarity Before:		Texture:	Medium
Color After:	Yellow	Clarity After:		Artifacts:	
Comments:	METALS-TAL				

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
D = Dilution

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
E = Value Exceeds Calibration Range
OR = Over Range

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Metals

- 2a -

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Client: Tetra Tech NUS, Inc. **SDG No.:** C4270

Contract: TETR06 **Lab Code:** CHEM **Case No.:** C4270 **SAS No.:** C4270

Initial Calibration Source: EPA

Continuing Calibration Source: INORGANIC VENTURES

Sample ID	Analyte	Result ug/L	True Value	% Recovery	Acceptance Window (%R)	M	Analysis Date	Analysis Time	Run Number
ICV01	Aluminum	2512.46	2521.0	99.7	90 - 110	P	10/27/2011	15:49	LB57533
	Antimony	969.30	994.0	97.5	90 - 110	P	10/27/2011	15:49	LB57533
	Arsenic	986.31	999.0	98.7	90 - 110	P	10/27/2011	15:49	LB57533
	Barium	510.01	503.0	101.4	90 - 110	P	10/27/2011	15:49	LB57533
	Beryllium	485.78	495.0	98.1	90 - 110	P	10/27/2011	15:49	LB57533
	Cadmium	492.79	496.0	99.4	90 - 110	P	10/27/2011	15:49	LB57533
	Calcium	10055.52	10026.0	100.3	90 - 110	P	10/27/2011	15:49	LB57533
	Chromium	489.33	490.0	99.9	90 - 110	P	10/27/2011	15:49	LB57533
	Cobalt	489.93	499.0	98.2	90 - 110	P	10/27/2011	15:49	LB57533
	Copper	499.62	492.0	101.5	90 - 110	P	10/27/2011	15:49	LB57533
	Iron	5058.99	5082.0	99.5	90 - 110	P	10/27/2011	15:49	LB57533
	Lead	990.65	1002.0	98.9	90 - 110	P	10/27/2011	15:49	LB57533
	Magnesium	5825.68	6074.0	95.9	90 - 110	P	10/27/2011	15:49	LB57533
	Manganese	505.05	499.0	101.2	90 - 110	P	10/27/2011	15:49	LB57533
	Nickel	492.49	503.0	97.9	90 - 110	P	10/27/2011	15:49	LB57533
	Potassium	9701.87	10021.0	96.8	90 - 110	P	10/27/2011	15:49	LB57533
	Selenium	974.39	1003.0	97.1	90 - 110	P	10/27/2011	15:49	LB57533
	Silver	512.72	501.0	102.3	90 - 110	P	10/27/2011	15:49	LB57533
	Sodium	9813.76	10097.0	97.2	90 - 110	P	10/27/2011	15:49	LB57533
	Thallium	1025.95	1003.0	102.3	90 - 110	P	10/27/2011	15:49	LB57533
	Vanadium	503.48	501.0	100.5	90 - 110	P	10/27/2011	15:49	LB57533
	Zinc	980.36	1025.0	95.6	90 - 110	P	10/27/2011	15:49	LB57533
CCV01	Aluminum	9810.99	10000.0	98.1	90 - 110	P	10/27/2011	16:06	LB57533
	Antimony	4855.92	5000.0	97.1	90 - 110	P	10/27/2011	16:06	LB57533
	Arsenic	4891.49	5000.0	97.8	90 - 110	P	10/27/2011	16:06	LB57533
	Barium	9822.86	10000.0	98.2	90 - 110	P	10/27/2011	16:06	LB57533
	Beryllium	247.17	250.0	98.9	90 - 110	P	10/27/2011	16:06	LB57533
	Cadmium	2445.48	2500.0	97.8	90 - 110	P	10/27/2011	16:06	LB57533
	Calcium	24572.56	25000.0	98.3	90 - 110	P	10/27/2011	16:06	LB57533
	Chromium	979.75	1000.0	98.0	90 - 110	P	10/27/2011	16:06	LB57533
	Cobalt	2435.43	2500.0	97.4	90 - 110	P	10/27/2011	16:06	LB57533
	Copper	1228.31	1250.0	98.3	90 - 110	P	10/27/2011	16:06	LB57533

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Metals

- 2a -

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Client: Tetra Tech NUS, Inc. **SDG No.:** C4270

Contract: TETR06 **Lab Code:** CHEM **Case No.:** C4270 **SAS No.:** C4270

Initial Calibration Source: EPA

Continuing Calibration Source: INORGANIC VENTURES

Sample ID	Analyte	Result ug/L	True Value	% Recovery	Acceptance Window (%R)	M	Analysis Date	Analysis Time	Run Number
CCV01	Iron	5020.63	5000.0	100.4	90 - 110	P	10/27/2011	16:06	LB57533
	Lead	4924.83	5000.0	98.5	90 - 110	P	10/27/2011	16:06	LB57533
	Magnesium	24462.58	25000.0	97.9	90 - 110	P	10/27/2011	16:06	LB57533
	Manganese	2474.36	2500.0	99.0	90 - 110	P	10/27/2011	16:06	LB57533
	Nickel	2433.25	2500.0	97.3	90 - 110	P	10/27/2011	16:06	LB57533
	Potassium	24174.28	25000.0	96.7	90 - 110	P	10/27/2011	16:06	LB57533
	Selenium	4897.15	5000.0	97.9	90 - 110	P	10/27/2011	16:06	LB57533
	Silver	1205.20	1250.0	96.4	90 - 110	P	10/27/2011	16:06	LB57533
	Sodium	24326.03	25000.0	97.3	90 - 110	P	10/27/2011	16:06	LB57533
	Thallium	4963.74	5000.0	99.3	90 - 110	P	10/27/2011	16:06	LB57533
	Vanadium	2429.85	2500.0	97.2	90 - 110	P	10/27/2011	16:06	LB57533
	Zinc	2416.00	2500.0	96.6	90 - 110	P	10/27/2011	16:06	LB57533
CCV02	Aluminum	9623.27	10000.0	96.2	90 - 110	P	10/27/2011	16:39	LB57533
	Antimony	4896.29	5000.0	97.9	90 - 110	P	10/27/2011	16:39	LB57533
	Arsenic	4888.73	5000.0	97.8	90 - 110	P	10/27/2011	16:39	LB57533
	Barium	9839.46	10000.0	98.4	90 - 110	P	10/27/2011	16:39	LB57533
	Beryllium	239.55	250.0	95.8	90 - 110	P	10/27/2011	16:39	LB57533
	Cadmium	2414.74	2500.0	96.6	90 - 110	P	10/27/2011	16:39	LB57533
	Calcium	23826.98	25000.0	95.3	90 - 110	P	10/27/2011	16:39	LB57533
	Chromium	959.35	1000.0	95.9	90 - 110	P	10/27/2011	16:39	LB57533
	Cobalt	2412.83	2500.0	96.5	90 - 110	P	10/27/2011	16:39	LB57533
	Copper	1198.41	1250.0	95.9	90 - 110	P	10/27/2011	16:39	LB57533
	Iron	4925.03	5000.0	98.5	90 - 110	P	10/27/2011	16:39	LB57533
	Lead	4878.51	5000.0	97.6	90 - 110	P	10/27/2011	16:39	LB57533
	Magnesium	23692.31	25000.0	94.8	90 - 110	P	10/27/2011	16:39	LB57533
	Manganese	2395.30	2500.0	95.8	90 - 110	P	10/27/2011	16:39	LB57533
	Nickel	2416.13	2500.0	96.6	90 - 110	P	10/27/2011	16:39	LB57533
	Potassium	23815.35	25000.0	95.3	90 - 110	P	10/27/2011	16:39	LB57533
	Selenium	4909.01	5000.0	98.2	90 - 110	P	10/27/2011	16:39	LB57533
	Silver	1210.01	1250.0	96.8	90 - 110	P	10/27/2011	16:39	LB57533
	Sodium	23978.32	25000.0	95.9	90 - 110	P	10/27/2011	16:39	LB57533
	Thallium	4922.62	5000.0	98.5	90 - 110	P	10/27/2011	16:39	LB57533
	Vanadium	2334.03	2500.0	93.4	90 - 110	P	10/27/2011	16:39	LB57533
	Zinc	2388.62	2500.0	95.5	90 - 110	P	10/27/2011	16:39	LB57533
CCV03	Aluminum	9831.62	10000.0	98.3	90 - 110	P	10/27/2011	17:11	LB57533

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- 2a -

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Client: Tetra Tech NUS, Inc. **SDG No.:** C4270

Contract: TETR06 **Lab Code:** CHEM **Case No.:** C4270 **SAS No.:** C4270

Initial Calibration Source: EPA

Continuing Calibration Source: INORGANIC VENTURES

Sample ID	Analyte	Result ug/L	True Value	% Recovery	Acceptance Window (%R)	M	Analysis Date	Analysis Time	Run Number
CCV03	Antimony	4825.65	5000.0	96.5	90 - 110	P	10/27/2011	17:11	LB57533
	Arsenic	4814.01	5000.0	96.3	90 - 110	P	10/27/2011	17:11	LB57533
	Barium	9910.05	10000.0	99.1	90 - 110	P	10/27/2011	17:11	LB57533
	Beryllium	242.68	250.0	97.1	90 - 110	P	10/27/2011	17:11	LB57533
	Cadmium	2338.61	2500.0	93.5	90 - 110	P	10/27/2011	17:11	LB57533
	Calcium	24390.11	25000.0	97.6	90 - 110	P	10/27/2011	17:11	LB57533
	Chromium	958.21	1000.0	95.8	90 - 110	P	10/27/2011	17:11	LB57533
	Cobalt	2342.68	2500.0	93.7	90 - 110	P	10/27/2011	17:11	LB57533
	Copper	1221.51	1250.0	97.7	90 - 110	P	10/27/2011	17:11	LB57533
	Iron	5040.74	5000.0	100.8	90 - 110	P	10/27/2011	17:11	LB57533
	Lead	4724.82	5000.0	94.5	90 - 110	P	10/27/2011	17:11	LB57533
	Magnesium	24128.99	25000.0	96.5	90 - 110	P	10/27/2011	17:11	LB57533
	Manganese	2436.42	2500.0	97.5	90 - 110	P	10/27/2011	17:11	LB57533
	Nickel	2351.73	2500.0	94.1	90 - 110	P	10/27/2011	17:11	LB57533
	Potassium	24253.60	25000.0	97.0	90 - 110	P	10/27/2011	17:11	LB57533
	Selenium	4863.64	5000.0	97.3	90 - 110	P	10/27/2011	17:11	LB57533
	Silver	1205.75	1250.0	96.5	90 - 110	P	10/27/2011	17:11	LB57533
	Sodium	24437.67	25000.0	97.8	90 - 110	P	10/27/2011	17:11	LB57533
	Thallium	4793.20	5000.0	95.9	90 - 110	P	10/27/2011	17:11	LB57533
	Vanadium	2347.76	2500.0	93.9	90 - 110	P	10/27/2011	17:11	LB57533
	Zinc	2441.62	2500.0	97.7	90 - 110	P	10/27/2011	17:11	LB57533
CCV04	Aluminum	9808.05	10000.0	98.1	90 - 110	P	10/27/2011	17:43	LB57533
	Antimony	4936.55	5000.0	98.7	90 - 110	P	10/27/2011	17:43	LB57533
	Arsenic	4923.42	5000.0	98.5	90 - 110	P	10/27/2011	17:43	LB57533
	Barium	10116.45	10000.0	101.2	90 - 110	P	10/27/2011	17:43	LB57533
	Beryllium	244.19	250.0	97.7	90 - 110	P	10/27/2011	17:43	LB57533
	Cadmium	2403.00	2500.0	96.1	90 - 110	P	10/27/2011	17:43	LB57533
	Calcium	24124.41	25000.0	96.5	90 - 110	P	10/27/2011	17:43	LB57533
	Chromium	963.66	1000.0	96.4	90 - 110	P	10/27/2011	17:43	LB57533
	Cobalt	2420.58	2500.0	96.8	90 - 110	P	10/27/2011	17:43	LB57533
	Copper	1241.37	1250.0	99.3	90 - 110	P	10/27/2011	17:43	LB57533
	Iron	4978.70	5000.0	99.6	90 - 110	P	10/27/2011	17:43	LB57533
	Lead	4909.52	5000.0	98.2	90 - 110	P	10/27/2011	17:43	LB57533
	Magnesium	23976.76	25000.0	95.9	90 - 110	P	10/27/2011	17:43	LB57533
	Manganese	2470.10	2500.0	98.8	90 - 110	P	10/27/2011	17:43	LB57533

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- 2a -

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Client: Tetra Tech NUS, Inc. **SDG No.:** C4270

Contract: TETR06 **Lab Code:** CHEM **Case No.:** C4270 **SAS No.:** C4270

Initial Calibration Source: EPA

Continuing Calibration Source: INORGANIC VENTURES

Sample ID	Analyte	Result ug/L	True Value	% Recovery	Acceptance Window (%R)	M	Analysis Date	Analysis Time	Run Number
CCV04	Nickel	2414.31	2500.0	96.6	90 - 110	P	10/27/2011	17:43	LB57533
	Potassium	24295.02	25000.0	97.2	90 - 110	P	10/27/2011	17:43	LB57533
	Selenium	4950.44	5000.0	99.0	90 - 110	P	10/27/2011	17:43	LB57533
	Silver	1221.50	1250.0	97.7	90 - 110	P	10/27/2011	17:43	LB57533
	Sodium	24591.14	25000.0	98.4	90 - 110	P	10/27/2011	17:43	LB57533
	Thallium	4951.03	5000.0	99.0	90 - 110	P	10/27/2011	17:43	LB57533
	Vanadium	2389.60	2500.0	95.6	90 - 110	P	10/27/2011	17:43	LB57533
	Zinc	2392.34	2500.0	95.7	90 - 110	P	10/27/2011	17:43	LB57533
CCV05	Aluminum	9760.87	10000.0	97.6	90 - 110	P	10/27/2011	18:15	LB57533
	Antimony	4915.49	5000.0	98.3	90 - 110	P	10/27/2011	18:15	LB57533
	Arsenic	4906.56	5000.0	98.1	90 - 110	P	10/27/2011	18:15	LB57533
	Barium	10184.85	10000.0	101.8	90 - 110	P	10/27/2011	18:15	LB57533
	Beryllium	243.43	250.0	97.4	90 - 110	P	10/27/2011	18:15	LB57533
	Cadmium	2408.64	2500.0	96.3	90 - 110	P	10/27/2011	18:15	LB57533
	Calcium	24172.17	25000.0	96.7	90 - 110	P	10/27/2011	18:15	LB57533
	Chromium	967.62	1000.0	96.8	90 - 110	P	10/27/2011	18:15	LB57533
	Cobalt	2419.24	2500.0	96.8	90 - 110	P	10/27/2011	18:15	LB57533
	Copper	1238.16	1250.0	99.1	90 - 110	P	10/27/2011	18:15	LB57533
	Iron	4967.53	5000.0	99.4	90 - 110	P	10/27/2011	18:15	LB57533
	Lead	4900.36	5000.0	98.0	90 - 110	P	10/27/2011	18:15	LB57533
	Magnesium	23940.50	25000.0	95.8	90 - 110	P	10/27/2011	18:15	LB57533
	Manganese	2455.75	2500.0	98.2	90 - 110	P	10/27/2011	18:15	LB57533
	Nickel	2415.12	2500.0	96.6	90 - 110	P	10/27/2011	18:15	LB57533
	Potassium	24175.43	25000.0	96.7	90 - 110	P	10/27/2011	18:15	LB57533
	Selenium	4941.18	5000.0	98.8	90 - 110	P	10/27/2011	18:15	LB57533
	Silver	1224.81	1250.0	98.0	90 - 110	P	10/27/2011	18:15	LB57533
	Sodium	24473.81	25000.0	97.9	90 - 110	P	10/27/2011	18:15	LB57533
	Thallium	4948.88	5000.0	99.0	90 - 110	P	10/27/2011	18:15	LB57533
	Vanadium	2402.23	2500.0	96.1	90 - 110	P	10/27/2011	18:15	LB57533
	Zinc	2422.08	2500.0	96.9	90 - 110	P	10/27/2011	18:15	LB57533
CCV06	Aluminum	9772.55	10000.0	97.7	90 - 110	P	10/27/2011	18:26	LB57533
	Antimony	4907.62	5000.0	98.2	90 - 110	P	10/27/2011	18:26	LB57533
	Arsenic	4883.01	5000.0	97.7	90 - 110	P	10/27/2011	18:26	LB57533
	Barium	10126.75	10000.0	101.3	90 - 110	P	10/27/2011	18:26	LB57533
	Beryllium	242.35	250.0	96.9	90 - 110	P	10/27/2011	18:26	LB57533

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Metals

- 2a -

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Client: Tetra Tech NUS, Inc. **SDG No.:** C4270

Contract: TETR06 **Lab Code:** CHEM **Case No.:** C4270 **SAS No.:** C4270

Initial Calibration Source: EPA

Continuing Calibration Source: INORGANIC VENTURES

Sample ID	Analyte	Result ug/L	True Value	% Recovery	Acceptance Window (%R)	M	Analysis Date	Analysis Time	Run Number
CCV06	Cadmium	2393.68	2500.0	95.7	90 - 110	P	10/27/2011	18:26	LB57533
	Calcium	24159.40	25000.0	96.6	90 - 110	P	10/27/2011	18:26	LB57533
	Chromium	956.78	1000.0	95.7	90 - 110	P	10/27/2011	18:26	LB57533
	Cobalt	2413.54	2500.0	96.5	90 - 110	P	10/27/2011	18:26	LB57533
	Copper	1240.68	1250.0	99.3	90 - 110	P	10/27/2011	18:26	LB57533
	Iron	4959.22	5000.0	99.2	90 - 110	P	10/27/2011	18:26	LB57533
	Lead	4892.25	5000.0	97.8	90 - 110	P	10/27/2011	18:26	LB57533
	Magnesium	23958.65	25000.0	95.8	90 - 110	P	10/27/2011	18:26	LB57533
	Manganese	2471.59	2500.0	98.9	90 - 110	P	10/27/2011	18:26	LB57533
	Nickel	2401.98	2500.0	96.1	90 - 110	P	10/27/2011	18:26	LB57533
	Potassium	23972.62	25000.0	95.9	90 - 110	P	10/27/2011	18:26	LB57533
	Selenium	4894.28	5000.0	97.9	90 - 110	P	10/27/2011	18:26	LB57533
	Silver	1227.56	1250.0	98.2	90 - 110	P	10/27/2011	18:26	LB57533
	Sodium	24492.00	25000.0	98.0	90 - 110	P	10/27/2011	18:26	LB57533
	Thallium	4934.97	5000.0	98.7	90 - 110	P	10/27/2011	18:26	LB57533
	Vanadium	2394.97	2500.0	95.8	90 - 110	P	10/27/2011	18:26	LB57533
	Zinc	2387.79	2500.0	95.5	90 - 110	P	10/27/2011	18:26	LB57533
CCV07	Aluminum	9915.68	10000.0	99.2	90 - 110	P	10/27/2011	18:58	LB57533
	Antimony	4815.90	5000.0	96.3	90 - 110	P	10/27/2011	18:58	LB57533
	Arsenic	4812.93	5000.0	96.3	90 - 110	P	10/27/2011	18:58	LB57533
	Barium	10247.87	10000.0	102.5	90 - 110	P	10/27/2011	18:58	LB57533
	Beryllium	250.55	250.0	100.2	90 - 110	P	10/27/2011	18:58	LB57533
	Cadmium	2412.64	2500.0	96.5	90 - 110	P	10/27/2011	18:58	LB57533
	Calcium	24857.58	25000.0	99.4	90 - 110	P	10/27/2011	18:58	LB57533
	Chromium	979.17	1000.0	97.9	90 - 110	P	10/27/2011	18:58	LB57533
	Cobalt	2433.65	2500.0	97.3	90 - 110	P	10/27/2011	18:58	LB57533
	Copper	1257.45	1250.0	100.6	90 - 110	P	10/27/2011	18:58	LB57533
	Iron	5077.47	5000.0	101.5	90 - 110	P	10/27/2011	18:58	LB57533
	Lead	4953.23	5000.0	99.1	90 - 110	P	10/27/2011	18:58	LB57533
	Magnesium	24790.46	25000.0	99.2	90 - 110	P	10/27/2011	18:58	LB57533
	Manganese	2584.38	2500.0	103.4	90 - 110	P	10/27/2011	18:58	LB57533
	Nickel	2400.95	2500.0	96.0	90 - 110	P	10/27/2011	18:58	LB57533
	Potassium	23958.26	25000.0	95.8	90 - 110	P	10/27/2011	18:58	LB57533
	Selenium	4757.66	5000.0	95.2	90 - 110	P	10/27/2011	18:58	LB57533
	Silver	1249.81	1250.0	100.0	90 - 110	P	10/27/2011	18:58	LB57533

CHEMTECH

Metals

- 2a -

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Client: Tetra Tech NUS, Inc. **SDG No.:** C4270

Contract: TETR06 **Lab Code:** CHEM **Case No.:** C4270 **SAS No.:** C4270

Initial Calibration Source: EPA

Continuing Calibration Source: INORGANIC VENTURES

Sample ID	Analyte	Result ug/L	True Value	% Recovery	Acceptance Window (%R)	M	Analysis Date	Analysis Time	Run Number
CCV07	Sodium	24850.48	25000.0	99.4	90 - 110	P	10/27/2011	18:58	LB57533
	Thallium	4960.61	5000.0	99.2	90 - 110	P	10/27/2011	18:58	LB57533
	Vanadium	2475.92	2500.0	99.0	90 - 110	P	10/27/2011	18:58	LB57533
	Zinc	2346.51	2500.0	93.9	90 - 110	P	10/27/2011	18:58	LB57533
CCV08	Aluminum	9935.15	10000.0	99.4	90 - 110	P	10/27/2011	19:30	LB57533
	Antimony	4790.35	5000.0	95.8	90 - 110	P	10/27/2011	19:30	LB57533
	Arsenic	4789.80	5000.0	95.8	90 - 110	P	10/27/2011	19:30	LB57533
	Barium	10343.65	10000.0	103.4	90 - 110	P	10/27/2011	19:30	LB57533
	Beryllium	250.41	250.0	100.2	90 - 110	P	10/27/2011	19:30	LB57533
	Cadmium	2409.69	2500.0	96.4	90 - 110	P	10/27/2011	19:30	LB57533
	Calcium	24738.09	25000.0	99.0	90 - 110	P	10/27/2011	19:30	LB57533
	Chromium	993.37	1000.0	99.3	90 - 110	P	10/27/2011	19:30	LB57533
	Cobalt	2438.62	2500.0	97.5	90 - 110	P	10/27/2011	19:30	LB57533
	Copper	1260.69	1250.0	100.9	90 - 110	P	10/27/2011	19:30	LB57533
	Iron	5063.82	5000.0	101.3	90 - 110	P	10/27/2011	19:30	LB57533
	Lead	4976.54	5000.0	99.5	90 - 110	P	10/27/2011	19:30	LB57533
	Magnesium	24778.42	25000.0	99.1	90 - 110	P	10/27/2011	19:30	LB57533
	Manganese	2607.56	2500.0	104.3	90 - 110	P	10/27/2011	19:30	LB57533
	Nickel	2399.42	2500.0	96.0	90 - 110	P	10/27/2011	19:30	LB57533
	Potassium	23943.84	25000.0	95.8	90 - 110	P	10/27/2011	19:30	LB57533
	Selenium	4702.90	5000.0	94.1	90 - 110	P	10/27/2011	19:30	LB57533
	Silver	1271.08	1250.0	101.7	90 - 110	P	10/27/2011	19:30	LB57533
	Sodium	24884.91	25000.0	99.5	90 - 110	P	10/27/2011	19:30	LB57533
	Thallium	4967.86	5000.0	99.4	90 - 110	P	10/27/2011	19:30	LB57533
	Vanadium	2498.31	2500.0	99.9	90 - 110	P	10/27/2011	19:30	LB57533
	Zinc	2317.45	2500.0	92.7	90 - 110	P	10/27/2011	19:30	LB57533
CCV09	Aluminum	9907.38	10000.0	99.1	90 - 110	P	10/27/2011	20:02	LB57533
	Antimony	4769.19	5000.0	95.4	90 - 110	P	10/27/2011	20:02	LB57533
	Arsenic	4769.35	5000.0	95.4	90 - 110	P	10/27/2011	20:02	LB57533
	Barium	10360.72	10000.0	103.6	90 - 110	P	10/27/2011	20:02	LB57533
	Beryllium	248.66	250.0	99.5	90 - 110	P	10/27/2011	20:02	LB57533
	Cadmium	2390.14	2500.0	95.6	90 - 110	P	10/27/2011	20:02	LB57533
	Calcium	24450.94	25000.0	97.8	90 - 110	P	10/27/2011	20:02	LB57533
	Chromium	991.46	1000.0	99.1	90 - 110	P	10/27/2011	20:02	LB57533
	Cobalt	2436.86	2500.0	97.5	90 - 110	P	10/27/2011	20:02	LB57533

CHEMTECH

Metals

- 2a -

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Client: Tetra Tech NUS, Inc. **SDG No.:** C4270

Contract: TETR06 **Lab Code:** CHEM **Case No.:** C4270 **SAS No.:** C4270

Initial Calibration Source: EPA

Continuing Calibration Source: INORGANIC VENTURES

Sample ID	Analyte	Result ug/L	True Value	% Recovery	Acceptance Window (%R)	M	Analysis Date	Analysis Time	Run Number
CCV09	Copper	1260.29	1250.0	100.8	90 - 110	P	10/27/2011	20:02	LB57533
	Iron	5026.66	5000.0	100.5	90 - 110	P	10/27/2011	20:02	LB57533
	Lead	4984.82	5000.0	99.7	90 - 110	P	10/27/2011	20:02	LB57533
	Magnesium	24567.38	25000.0	98.3	90 - 110	P	10/27/2011	20:02	LB57533
	Manganese	2590.33	2500.0	103.6	90 - 110	P	10/27/2011	20:02	LB57533
	Nickel	2383.29	2500.0	95.3	90 - 110	P	10/27/2011	20:02	LB57533
	Potassium	23828.75	25000.0	95.3	90 - 110	P	10/27/2011	20:02	LB57533
	Selenium	4660.54	5000.0	93.2	90 - 110	P	10/27/2011	20:02	LB57533
	Silver	1271.47	1250.0	101.7	90 - 110	P	10/27/2011	20:02	LB57533
	Sodium	24778.35	25000.0	99.1	90 - 110	P	10/27/2011	20:02	LB57533
	Thallium	4962.50	5000.0	99.2	90 - 110	P	10/27/2011	20:02	LB57533
	Vanadium	2482.93	2500.0	99.3	90 - 110	P	10/27/2011	20:02	LB57533
	Zinc	2295.22	2500.0	91.8	90 - 110	P	10/27/2011	20:02	LB57533
CCV10	Aluminum	9909.10	10000.0	99.1	90 - 110	P	10/27/2011	20:34	LB57533
	Antimony	4782.17	5000.0	95.6	90 - 110	P	10/27/2011	20:34	LB57533
	Arsenic	4782.39	5000.0	95.6	90 - 110	P	10/27/2011	20:34	LB57533
	Barium	10273.55	10000.0	102.7	90 - 110	P	10/27/2011	20:34	LB57533
	Beryllium	250.52	250.0	100.2	90 - 110	P	10/27/2011	20:34	LB57533
	Cadmium	2393.52	2500.0	95.7	90 - 110	P	10/27/2011	20:34	LB57533
	Calcium	24734.28	25000.0	98.9	90 - 110	P	10/27/2011	20:34	LB57533
	Chromium	985.73	1000.0	98.6	90 - 110	P	10/27/2011	20:34	LB57533
	Cobalt	2428.99	2500.0	97.2	90 - 110	P	10/27/2011	20:34	LB57533
	Copper	1258.45	1250.0	100.7	90 - 110	P	10/27/2011	20:34	LB57533
	Iron	5071.32	5000.0	101.4	90 - 110	P	10/27/2011	20:34	LB57533
	Lead	4963.79	5000.0	99.3	90 - 110	P	10/27/2011	20:34	LB57533
	Magnesium	24650.35	25000.0	98.6	90 - 110	P	10/27/2011	20:34	LB57533
	Manganese	2586.15	2500.0	103.4	90 - 110	P	10/27/2011	20:34	LB57533
	Nickel	2385.33	2500.0	95.4	90 - 110	P	10/27/2011	20:34	LB57533
	Potassium	23859.75	25000.0	95.4	90 - 110	P	10/27/2011	20:34	LB57533
	Selenium	4692.98	5000.0	93.9	90 - 110	P	10/27/2011	20:34	LB57533
	Silver	1262.50	1250.0	101.0	90 - 110	P	10/27/2011	20:34	LB57533
	Sodium	24709.09	25000.0	98.8	90 - 110	P	10/27/2011	20:34	LB57533
	Thallium	4951.43	5000.0	99.0	90 - 110	P	10/27/2011	20:34	LB57533
	Vanadium	2481.48	2500.0	99.3	90 - 110	P	10/27/2011	20:34	LB57533
	Zinc	2306.85	2500.0	92.3	90 - 110	P	10/27/2011	20:34	LB57533

CHEMTECH

Metals

- 2a -

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Client: Tetra Tech NUS, Inc. **SDG No.:** C4270

Contract: TETR06 **Lab Code:** CHEM **Case No.:** C4270 **SAS No.:** C4270

Initial Calibration Source: EPA

Continuing Calibration Source: INORGANIC VENTURES

Sample ID	Analyte	Result ug/L	True Value	% Recovery	Acceptance Window (%R)	M	Analysis Date	Analysis Time	Run Number
CCV11	Aluminum	10006.62	10000.0	100.1	90 - 110	P	10/27/2011	21:06	LB57533
	Antimony	4723.50	5000.0	94.5	90 - 110	P	10/27/2011	21:06	LB57533
	Arsenic	4726.71	5000.0	94.5	90 - 110	P	10/27/2011	21:06	LB57533
	Barium	10509.62	10000.0	105.1	90 - 110	P	10/27/2011	21:06	LB57533
	Beryllium	250.94	250.0	100.4	90 - 110	P	10/27/2011	21:06	LB57533
	Cadmium	2377.34	2500.0	95.1	90 - 110	P	10/27/2011	21:06	LB57533
	Calcium	24811.69	25000.0	99.2	90 - 110	P	10/27/2011	21:06	LB57533
	Chromium	996.33	1000.0	99.6	90 - 110	P	10/27/2011	21:06	LB57533
	Cobalt	2425.01	2500.0	97.0	90 - 110	P	10/27/2011	21:06	LB57533
	Copper	1273.97	1250.0	101.9	90 - 110	P	10/27/2011	21:06	LB57533
	Iron	5057.79	5000.0	101.2	90 - 110	P	10/27/2011	21:06	LB57533
	Lead	4975.67	5000.0	99.5	90 - 110	P	10/27/2011	21:06	LB57533
	Magnesium	24771.59	25000.0	99.1	90 - 110	P	10/27/2011	21:06	LB57533
	Manganese	2638.90	2500.0	105.6	90 - 110	P	10/27/2011	21:06	LB57533
	Nickel	2366.60	2500.0	94.7	90 - 110	P	10/27/2011	21:06	LB57533
	Potassium	23800.38	25000.0	95.2	90 - 110	P	10/27/2011	21:06	LB57533
	Selenium	4606.13	5000.0	92.1	90 - 110	P	10/27/2011	21:06	LB57533
	Silver	1290.18	1250.0	103.2	90 - 110	P	10/27/2011	21:06	LB57533
	Sodium	25026.10	25000.0	100.1	90 - 110	P	10/27/2011	21:06	LB57533
	Thallium	4943.85	5000.0	98.9	90 - 110	P	10/27/2011	21:06	LB57533
	Vanadium	2511.91	2500.0	100.5	90 - 110	P	10/27/2011	21:06	LB57533
	Zinc	2280.74	2500.0	91.2	90 - 110	P	10/27/2011	21:06	LB57533

CHEMTECH

Metals

- 2a -

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Client: Tetra Tech NUS, Inc. **SDG No.:** C4270

Contract: TETR06 **Lab Code:** CHEM **Case No.:** C4270 **SAS No.:** C4270

Initial Calibration Source: EPA

Continuing Calibration Source: PLASMA-PURE

Sample ID	Analyte	Result ug/L	True Value	% Recovery	Acceptance Window (%R)	M	Analysis Date	Analysis Time	Run Number
ICV01	Mercury	3.98	4.0	99.5	90 - 110	CV	10/24/2011	16:34	LB57466
CCV01	Mercury	5.33	5.0	106.6	90 - 110	CV	10/24/2011	16:38	LB57466
CCV02	Mercury	5.13	5.0	102.6	90 - 110	CV	10/24/2011	17:08	LB57466
CCV03	Mercury	5.10	5.0	102.0	90 - 110	CV	10/24/2011	17:33	LB57466
CCV04	Mercury	4.82	5.0	96.4	90 - 110	CV	10/24/2011	17:59	LB57466
CCV05	Mercury	4.81	5.0	96.2	90 - 110	CV	10/24/2011	18:23	LB57466
CCV06	Mercury	4.59	5.0	91.8	90 - 110	CV	10/24/2011	18:45	LB57466
ICV01	Mercury	3.80	4.0	95.0	90 - 110	CV	10/25/2011	10:55	LB57471
CCV01	Mercury	5.00	5.0	100.0	90 - 110	CV	10/25/2011	10:59	LB57471
CCV02	Mercury	4.89	5.0	97.8	90 - 110	CV	10/25/2011	11:23	LB57471
CCV03	Mercury	4.93	5.0	98.6	90 - 110	CV	10/25/2011	11:37	LB57471

CHEMTECH

Metals

- 2b -

CRDL STANDARD FOR AA & ICP

Client: Tetra Tech NUS, Inc. **SDG No.:** C4270

Contract: TETR06 **Lab Code:** CHEM **Case No.:** C4270 **SAS No.:** C4270

Initial Calibration Source: PLASMA-PURE

Continuing Calibration Source:

Sample ID	Analyte	Result ug/L	True Value ug/L	% Recovery	Acceptance Window (%R)	M	Analysis Date	Analysis Time	Run Number
CRI01	Mercury	0.09	0.2	45.0	0 - 200	CV	10/24/2011	16:50	LB57466
CRI01	Mercury	0.15	0.2	75.0	0 - 200	CV	10/25/2011	11:05	LB57471
CRI01	Aluminum	68.26	50.0	136.5	50 - 150	P	10/27/2011	15:55	LB57533
	Antimony	24.45	25.0	97.8	50 - 150	P	10/27/2011	15:55	LB57533
	Arsenic	9.54	10.0	95.4	70 - 130	P	10/27/2011	15:55	LB57533
	Barium	50.75	50.0	101.5	70 - 130	P	10/27/2011	15:55	LB57533
	Beryllium	2.97	3.0	99.0	70 - 130	P	10/27/2011	15:55	LB57533
	Cadmium	3.10	3.0	103.3	70 - 130	P	10/27/2011	15:55	LB57533
	Chromium	5.59	5.0	111.8	70 - 130	P	10/27/2011	15:55	LB57533
	Cobalt	14.57	15.0	97.1	70 - 130	P	10/27/2011	15:55	LB57533
	Copper	15.60	10.0	156.0	70 - 130	P	10/27/2011	15:55	LB57533
	Iron	60.966	50.0	121.93	50 - 150	P	10/27/2011	15:55	LB57533
	Lead	6.96	6.0	116.0	50 - 150	P	10/27/2011	15:55	LB57533
	Manganese	10.35	10.0	103.5	70 - 130	P	10/27/2011	15:55	LB57533
	Nickel	19.37	20.0	96.8	70 - 130	P	10/27/2011	15:55	LB57533
	Selenium	10.84	10.0	108.4	70 - 130	P	10/27/2011	15:55	LB57533
	Silver	4.86	5.0	97.2	70 - 130	P	10/27/2011	15:55	LB57533
	Thallium	20.85	20.0	104.2	50 - 150	P	10/27/2011	15:55	LB57533
	Vanadium	20.78	20.0	103.9	70 - 130	P	10/27/2011	15:55	LB57533
	Zinc	20.93	20.0	104.6	70 - 130	P	10/27/2011	15:55	LB57533
CRI02	Calcium	1038.76	1000.0	103.9	50 - 150	P	10/27/2011	15:58	LB57533
	Magnesium	1013.39	1000.0	101.3	50 - 150	P	10/27/2011	15:58	LB57533
	Potassium	1033.98	1000.0	103.4	50 - 150	P	10/27/2011	15:58	LB57533
	Sodium	1187.56	1000.0	118.8	50 - 150	P	10/27/2011	15:58	LB57533

CHEMTECH

Metals
- 4 -
INTERFERENCE CHECK SAMPLE

Client: Tetra Tech NUS, Inc. **SDG No.:** C4270

Contract: TETR06 **Lab Code:** CHEM **Case No.:** C4270 **SAS No.:** C4270

ICS Source: EPA **Instrument ID:** P5

Sample ID	Analyte	Result ug/L	True Value ug/L	% Recovery	Acceptance Window	Analysis Date	Analysis Time	Run Number
ICSA01	Aluminum	246000	244100	100.8	80 - 120%	10/27/2011	16:00	LB57533
	Antimony	1.3				10/27/2011	16:00	LB57533
	Arsenic	6.1				10/27/2011	16:00	LB57533
	Barium	4.0				10/27/2011	16:00	LB57533
	Beryllium	0.86				10/27/2011	16:00	LB57533
	Cadmium	3.8				10/27/2011	16:00	LB57533
	Calcium	246000	234900	104.7	80 - 120%	10/27/2011	16:00	LB57533
	Chromium	47.9	43	111.4	80 - 120%	10/27/2011	16:00	LB57533
	Cobalt	5.6				10/27/2011	16:00	LB57533
	Copper	27.1				10/27/2011	16:00	LB57533
	Iron	95000	95600	99.4	80 - 120%	10/27/2011	16:00	LB57533
	Lead	12.6				10/27/2011	16:00	LB57533
	Magnesium	252000	247500	101.8	80 - 120%	10/27/2011	16:00	LB57533
	Manganese	19.5	19	102.6	80 - 120%	10/27/2011	16:00	LB57533
	Nickel	25.2				10/27/2011	16:00	LB57533
	Potassium	-167				10/27/2011	16:00	LB57533
	Selenium	5.6				10/27/2011	16:00	LB57533
	Silver	-6.4				10/27/2011	16:00	LB57533
	Sodium	1010				10/27/2011	16:00	LB57533
	Thallium	-2.9				10/27/2011	16:00	LB57533
	Vanadium	1.8				10/27/2011	16:00	LB57533
	Zinc	35.7				10/27/2011	16:00	LB57533
ICSAB01	Aluminum	249000	241100	103.3	80 - 120%	10/27/2011	16:03	LB57533
	Antimony	600	589	101.9	80 - 120%	10/27/2011	16:03	LB57533
	Arsenic	107	101	105.9	80 - 120%	10/27/2011	16:03	LB57533
	Barium	500	495	101.0	80 - 120%	10/27/2011	16:03	LB57533
	Beryllium	504	475	106.1	80 - 120%	10/27/2011	16:03	LB57533
	Cadmium	1020	940	108.5	80 - 120%	10/27/2011	16:03	LB57533
	Calcium	248000	231100	107.3	80 - 120%	10/27/2011	16:03	LB57533
	Chromium	517	511	101.2	80 - 120%	10/27/2011	16:03	LB57533
	Cobalt	499	461	108.2	80 - 120%	10/27/2011	16:03	LB57533
	Copper	524	548	95.6	80 - 120%	10/27/2011	16:03	LB57533
	Iron	95900	94800	101.2	80 - 120%	10/27/2011	16:03	LB57533
	Lead	66.3	61	108.7	80 - 120%	10/27/2011	16:03	LB57533
	Magnesium	254000	251100	101.2	80 - 120%	10/27/2011	16:03	LB57533
	Manganese	511	502	101.8	80 - 120%	10/27/2011	16:03	LB57533
	Nickel	1030	984	104.7	80 - 120%	10/27/2011	16:03	LB57533
	Potassium	-219				10/27/2011	16:03	LB57533
	Selenium	56.9	53	107.4	80 - 120%	10/27/2011	16:03	LB57533
	Silver	213	206	103.4	80 - 120%	10/27/2011	16:03	LB57533
	Sodium	990				10/27/2011	16:03	LB57533
	Thallium	95.1	103	92.3	80 - 120%	10/27/2011	16:03	LB57533
	Vanadium	465	494	94.1	80 - 120%	10/27/2011	16:03	LB57533
	Zinc	1030	1028	100.2	80 - 120%	10/27/2011	16:03	LB57533

CHEMTECH

Metals

- 3a -

INITIAL AND CONTINUING CALIBRATION BLANK SUMMARY

Client: Tetra Tech NUS, Inc. **SDG No.:** C4270

Contract: TETR06 **Lab Code:** CHEM **Case No.:** C4270 **SAS No.:** C4270

Sample ID	Analyte	Result ug/L	Acceptance Limit	Conc Qual	MDL	CRQL	M	Analysis Date	Analysis Time	Run Number
ICB01	Mercury	0.092	+/-0.200	U	0.092	0.200	CV	10/24/2011	16:36	LB57466
CCB01	Mercury	0.092	+/-0.200	U	0.092	0.200	CV	10/24/2011	16:48	LB57466
CCB02	Mercury	0.092	+/-0.200	U	0.092	0.200	CV	10/24/2011	17:12	LB57466
CCB03	Mercury	0.092	+/-0.200	U	0.092	0.200	CV	10/24/2011	17:35	LB57466
CCB04	Mercury	0.092	+/-0.200	U	0.092	0.200	CV	10/24/2011	18:04	LB57466
CCB05	Mercury	0.092	+/-0.200	U	0.092	0.200	CV	10/24/2011	18:29	LB57466
CCB06	Mercury	0.092	+/-0.200	U	0.092	0.200	CV	10/24/2011	18:47	LB57466
ICB01	Mercury	0.092	+/-0.200	U	0.092	0.200	CV	10/25/2011	10:57	LB57471
CCB01	Mercury	0.092	+/-0.200	U	0.092	0.200	CV	10/25/2011	11:02	LB57471
CCB02	Mercury	0.092	+/-0.200	U	0.092	0.200	CV	10/25/2011	11:26	LB57471
CCB03	Mercury	0.092	+/-0.200	U	0.092	0.200	CV	10/25/2011	11:40	LB57471
ICB01	Aluminum	6.5	+/-50.0	U	6.5	50.0	P	10/27/2011	15:52	LB57533
	Antimony	8.0	+/-25.0	U	8.0	25.0	P	10/27/2011	15:52	LB57533
	Arsenic	4.2	+/-10.0	U	4.2	10.0	P	10/27/2011	15:52	LB57533
	Barium	4.0	+/-50.0	U	4.0	50.0	P	10/27/2011	15:52	LB57533
	Beryllium	0.7	+/-3.0	U	0.7	3.0	P	10/27/2011	15:52	LB57533
	Cadmium	0.5	+/-3.0	U	0.5	3.0	P	10/27/2011	15:52	LB57533
	Calcium	31.8	+/-1000.0	U	31.8	1000.0	P	10/27/2011	15:52	LB57533
	Chromium	1.1	+/-5.0	U	1.1	5.0	P	10/27/2011	15:52	LB57533
	Cobalt	5.8	+/-15.0	U	5.8	15.0	P	10/27/2011	15:52	LB57533
	Copper	3.6	+/-10.0	J	2.0	10.0	P	10/27/2011	15:52	LB57533
	Iron	20.4	+/-50.0	U	20.4	50.0	P	10/27/2011	15:52	LB57533
	Lead	2.6	+/-6.0	U	2.6	6.0	P	10/27/2011	15:52	LB57533
	Magnesium	32.5	+/-1000.0	U	32.5	1000.0	P	10/27/2011	15:52	LB57533
	Manganese	1.7	+/-10.0	U	1.7	10.0	P	10/27/2011	15:52	LB57533
	Nickel	4.2	+/-20.0	U	4.2	20.0	P	10/27/2011	15:52	LB57533
	Potassium	38.8	+/-1000.0	U	38.8	1000.0	P	10/27/2011	15:52	LB57533
	Selenium	4.8	+/-10.0	U	4.8	10.0	P	10/27/2011	15:52	LB57533
	Silver	1.5	+/-5.0	U	1.5	5.0	P	10/27/2011	15:52	LB57533
	Sodium	136.2	+/-1000.0	J	13.9	1000.0	P	10/27/2011	15:52	LB57533
	Thallium	2.5	+/-20.0	J	2.4	20.0	P	10/27/2011	15:52	LB57533
	Vanadium	6.1	+/-20.0	U	6.1	20.0	P	10/27/2011	15:52	LB57533
	Zinc	6.5	+/-20.0	U	6.5	20.0	P	10/27/2011	15:52	LB57533
CCB01	Aluminum	6.5	+/-50.0	U	6.5	50.0	P	10/27/2011	16:08	LB57533
	Antimony	8.0	+/-25.0	U	8.0	25.0	P	10/27/2011	16:08	LB57533
	Arsenic	4.2	+/-10.0	U	4.2	10.0	P	10/27/2011	16:08	LB57533
	Barium	4.0	+/-50.0	U	4.0	50.0	P	10/27/2011	16:08	LB57533
	Beryllium	0.7	+/-3.0	U	0.7	3.0	P	10/27/2011	16:08	LB57533

CHEMTECH

Metals

- 3a -

INITIAL AND CONTINUING CALIBRATION BLANK SUMMARY

Client: Tetra Tech NUS, Inc. **SDG No.:** C4270

Contract: TETR06 **Lab Code:** CHEM **Case No.:** C4270 **SAS No.:** C4270

Sample ID	Analyte	Result ug/L	Acceptance Limit	Conc Qual	MDL	CRQL	M	Analysis Date	Analysis Time	Run Number
CCB01	Cadmium	0.5	+/-3.0	U	0.5	3.0	P	10/27/2011	16:08	LB57533
	Calcium	31.8	+/-1000.0	U	31.8	1000.0	P	10/27/2011	16:08	LB57533
	Chromium	1.1	+/-5.0	U	1.1	5.0	P	10/27/2011	16:08	LB57533
	Cobalt	5.8	+/-15.0	U	5.8	15.0	P	10/27/2011	16:08	LB57533
	Copper	4.0	+/-10.0	J	2.0	10.0	P	10/27/2011	16:08	LB57533
	Iron	20.4	+/-50.0	U	20.4	50.0	P	10/27/2011	16:08	LB57533
	Lead	2.6	+/-6.0	U	2.6	6.0	P	10/27/2011	16:08	LB57533
	Magnesium	32.5	+/-1000.0	U	32.5	1000.0	P	10/27/2011	16:08	LB57533
	Manganese	1.7	+/-10.0	U	1.7	10.0	P	10/27/2011	16:08	LB57533
	Nickel	4.2	+/-20.0	U	4.2	20.0	P	10/27/2011	16:08	LB57533
	Potassium	38.8	+/-1000.0	U	38.8	1000.0	P	10/27/2011	16:08	LB57533
	Selenium	4.8	+/-10.0	U	4.8	10.0	P	10/27/2011	16:08	LB57533
	Silver	1.5	+/-5.0	U	1.5	5.0	P	10/27/2011	16:08	LB57533
	Sodium	243.8	+/-1000.0	J	13.9	1000.0	P	10/27/2011	16:08	LB57533
	Thallium	2.4	+/-20.0	U	2.4	20.0	P	10/27/2011	16:08	LB57533
	Vanadium	6.1	+/-20.0	U	6.1	20.0	P	10/27/2011	16:08	LB57533
	Zinc	6.5	+/-20.0	U	6.5	20.0	P	10/27/2011	16:08	LB57533
CCB02	Aluminum	6.5	+/-50.0	U	6.5	50.0	P	10/27/2011	16:42	LB57533
	Antimony	8.0	+/-25.0	U	8.0	25.0	P	10/27/2011	16:42	LB57533
	Arsenic	4.2	+/-10.0	U	4.2	10.0	P	10/27/2011	16:42	LB57533
	Barium	4.0	+/-50.0	U	4.0	50.0	P	10/27/2011	16:42	LB57533
	Beryllium	0.7	+/-3.0	U	0.7	3.0	P	10/27/2011	16:42	LB57533
	Cadmium	0.5	+/-3.0	U	0.5	3.0	P	10/27/2011	16:42	LB57533
	Calcium	31.8	+/-1000.0	U	31.8	1000.0	P	10/27/2011	16:42	LB57533
	Chromium	1.1	+/-5.0	U	1.1	5.0	P	10/27/2011	16:42	LB57533
	Cobalt	5.8	+/-15.0	U	5.8	15.0	P	10/27/2011	16:42	LB57533
	Copper	4.9	+/-10.0	J	2.0	10.0	P	10/27/2011	16:42	LB57533
	Iron	20.4	+/-50.0	U	20.4	50.0	P	10/27/2011	16:42	LB57533
	Lead	2.6	+/-6.0	U	2.6	6.0	P	10/27/2011	16:42	LB57533
	Magnesium	32.5	+/-1000.0	U	32.5	1000.0	P	10/27/2011	16:42	LB57533
	Manganese	1.7	+/-10.0	U	1.7	10.0	P	10/27/2011	16:42	LB57533
	Nickel	4.2	+/-20.0	U	4.2	20.0	P	10/27/2011	16:42	LB57533
	Potassium	89.5	+/-1000.0	J	38.8	1000.0	P	10/27/2011	16:42	LB57533
	Selenium	4.8	+/-10.0	U	4.8	10.0	P	10/27/2011	16:42	LB57533
	Silver	1.5	+/-5.0	U	1.5	5.0	P	10/27/2011	16:42	LB57533
	Sodium	247.9	+/-1000.0	J	13.9	1000.0	P	10/27/2011	16:42	LB57533
	Thallium	2.6	+/-20.0	J	2.4	20.0	P	10/27/2011	16:42	LB57533
	Vanadium	6.1	+/-20.0	U	6.1	20.0	P	10/27/2011	16:42	LB57533
	Zinc	6.5	+/-20.0	U	6.5	20.0	P	10/27/2011	16:42	LB57533
CCB03	Aluminum	6.5	+/-50.0	U	6.5	50.0	P	10/27/2011	17:14	LB57533
	Antimony	8.0	+/-25.0	U	8.0	25.0	P	10/27/2011	17:14	LB57533
	Arsenic	4.2	+/-10.0	U	4.2	10.0	P	10/27/2011	17:14	LB57533

CHEMTECH

Metals

- 3a -

INITIAL AND CONTINUING CALIBRATION BLANK SUMMARY

Client: Tetra Tech NUS, Inc. **SDG No.:** C4270

Contract: TETR06 **Lab Code:** CHEM **Case No.:** C4270 **SAS No.:** C4270

Sample ID	Analyte	Result ug/L	Acceptance Limit	Conc Qual	MDL	CRQL	M	Analysis Date	Analysis Time	Run Number
CCB03	Barium	4.0	+/-50.0	U	4.0	50.0	P	10/27/2011	17:14	LB57533
	Beryllium	0.7	+/-3.0	U	0.7	3.0	P	10/27/2011	17:14	LB57533
	Cadmium	0.5	+/-3.0	U	0.5	3.0	P	10/27/2011	17:14	LB57533
	Calcium	31.8	+/-1000.0	U	31.8	1000.0	P	10/27/2011	17:14	LB57533
	Chromium	1.1	+/-5.0	U	1.1	5.0	P	10/27/2011	17:14	LB57533
	Cobalt	5.8	+/-15.0	U	5.8	15.0	P	10/27/2011	17:14	LB57533
	Copper	6.5	+/-10.0	J	2.0	10.0	P	10/27/2011	17:14	LB57533
	Iron	20.4	+/-50.0	U	20.4	50.0	P	10/27/2011	17:14	LB57533
	Lead	2.6	+/-6.0	U	2.6	6.0	P	10/27/2011	17:14	LB57533
	Magnesium	32.5	+/-1000.0	U	32.5	1000.0	P	10/27/2011	17:14	LB57533
	Manganese	1.7	+/-10.0	U	1.7	10.0	P	10/27/2011	17:14	LB57533
	Nickel	4.2	+/-20.0	U	4.2	20.0	P	10/27/2011	17:14	LB57533
	Potassium	38.8	+/-1000.0	U	38.8	1000.0	P	10/27/2011	17:14	LB57533
	Selenium	4.8	+/-10.0	U	4.8	10.0	P	10/27/2011	17:14	LB57533
	Silver	1.5	+/-5.0	U	1.5	5.0	P	10/27/2011	17:14	LB57533
	Sodium	55.4	+/-1000.0	J	13.9	1000.0	P	10/27/2011	17:14	LB57533
	Thallium	3.6	+/-20.0	J	2.4	20.0	P	10/27/2011	17:14	LB57533
	Vanadium	6.1	+/-20.0	U	6.1	20.0	P	10/27/2011	17:14	LB57533
	Zinc	6.5	+/-20.0	U	6.5	20.0	P	10/27/2011	17:14	LB57533
CCB04	Aluminum	6.5	+/-50.0	U	6.5	50.0	P	10/27/2011	17:46	LB57533
	Antimony	8.0	+/-25.0	U	8.0	25.0	P	10/27/2011	17:46	LB57533
	Arsenic	4.2	+/-10.0	U	4.2	10.0	P	10/27/2011	17:46	LB57533
	Barium	4.0	+/-50.0	U	4.0	50.0	P	10/27/2011	17:46	LB57533
	Beryllium	0.7	+/-3.0	U	0.7	3.0	P	10/27/2011	17:46	LB57533
	Cadmium	0.5	+/-3.0	U	0.5	3.0	P	10/27/2011	17:46	LB57533
	Calcium	31.8	+/-1000.0	U	31.8	1000.0	P	10/27/2011	17:46	LB57533
	Chromium	1.1	+/-5.0	U	1.1	5.0	P	10/27/2011	17:46	LB57533
	Cobalt	5.8	+/-15.0	U	5.8	15.0	P	10/27/2011	17:46	LB57533
	Copper	7.1	+/-10.0	J	2.0	10.0	P	10/27/2011	17:46	LB57533
	Iron	20.4	+/-50.0	U	20.4	50.0	P	10/27/2011	17:46	LB57533
	Lead	2.6	+/-6.0	U	2.6	6.0	P	10/27/2011	17:46	LB57533
	Magnesium	32.5	+/-1000.0	U	32.5	1000.0	P	10/27/2011	17:46	LB57533
	Manganese	1.7	+/-10.0	U	1.7	10.0	P	10/27/2011	17:46	LB57533
	Nickel	4.2	+/-20.0	U	4.2	20.0	P	10/27/2011	17:46	LB57533
	Potassium	38.8	+/-1000.0	U	38.8	1000.0	P	10/27/2011	17:46	LB57533
	Selenium	4.8	+/-10.0	U	4.8	10.0	P	10/27/2011	17:46	LB57533
	Silver	1.5	+/-5.0	U	1.5	5.0	P	10/27/2011	17:46	LB57533
	Sodium	47.6	+/-1000.0	J	13.9	1000.0	P	10/27/2011	17:46	LB57533
	Thallium	10.2	+/-20.0	J	2.4	20.0	P	10/27/2011	17:46	LB57533
	Vanadium	6.1	+/-20.0	U	6.1	20.0	P	10/27/2011	17:46	LB57533
	Zinc	6.5	+/-20.0	U	6.5	20.0	P	10/27/2011	17:46	LB57533
CCB05	Aluminum	6.5	+/-50.0	U	6.5	50.0	P	10/27/2011	18:18	LB57533

CHEMTECH

Metals

- 3a -

INITIAL AND CONTINUING CALIBRATION BLANK SUMMARY

Client: Tetra Tech NUS, Inc. **SDG No.:** C4270

Contract: TETR06 **Lab Code:** CHEM **Case No.:** C4270 **SAS No.:** C4270

Sample ID	Analyte	Result ug/L	Acceptance Limit	Conc Qual	MDL	CRQL	M	Analysis Date	Analysis Time	Run Number
CCB05	Antimony	8.0	+/-25.0	U	8.0	25.0	P	10/27/2011	18:18	LB57533
	Arsenic	4.2	+/-10.0	U	4.2	10.0	P	10/27/2011	18:18	LB57533
	Barium	4.0	+/-50.0	U	4.0	50.0	P	10/27/2011	18:18	LB57533
	Beryllium	0.7	+/-3.0	U	0.7	3.0	P	10/27/2011	18:18	LB57533
	Cadmium	0.5	+/-3.0	U	0.5	3.0	P	10/27/2011	18:18	LB57533
	Calcium	31.8	+/-1000.0	U	31.8	1000.0	P	10/27/2011	18:18	LB57533
	Chromium	1.1	+/-5.0	U	1.1	5.0	P	10/27/2011	18:18	LB57533
	Cobalt	5.8	+/-15.0	U	5.8	15.0	P	10/27/2011	18:18	LB57533
	Copper	9.3	+/-10.0	J	2.0	10.0	P	10/27/2011	18:18	LB57533
	Iron	20.4	+/-50.0	U	20.4	50.0	P	10/27/2011	18:18	LB57533
	Lead	2.6	+/-6.0	U	2.6	6.0	P	10/27/2011	18:18	LB57533
	Magnesium	32.5	+/-1000.0	U	32.5	1000.0	P	10/27/2011	18:18	LB57533
	Manganese	1.7	+/-10.0	U	1.7	10.0	P	10/27/2011	18:18	LB57533
	Nickel	4.2	+/-20.0	U	4.2	20.0	P	10/27/2011	18:18	LB57533
	Potassium	38.8	+/-1000.0	U	38.8	1000.0	P	10/27/2011	18:18	LB57533
	Selenium	4.8	+/-10.0	U	4.8	10.0	P	10/27/2011	18:18	LB57533
	Silver	1.5	+/-5.0	U	1.5	5.0	P	10/27/2011	18:18	LB57533
	Sodium	84.0	+/-1000.0	J	13.9	1000.0	P	10/27/2011	18:18	LB57533
	Thallium	11.9	+/-20.0	J	2.4	20.0	P	10/27/2011	18:18	LB57533
	Vanadium	6.1	+/-20.0	U	6.1	20.0	P	10/27/2011	18:18	LB57533
	Zinc	6.5	+/-20.0	U	6.5	20.0	P	10/27/2011	18:18	LB57533
CCB06	Aluminum	6.5	+/-50.0	U	6.5	50.0	P	10/27/2011	18:29	LB57533
	Antimony	8.0	+/-25.0	U	8.0	25.0	P	10/27/2011	18:29	LB57533
	Arsenic	4.2	+/-10.0	U	4.2	10.0	P	10/27/2011	18:29	LB57533
	Barium	4.0	+/-50.0	U	4.0	50.0	P	10/27/2011	18:29	LB57533
	Beryllium	0.7	+/-3.0	U	0.7	3.0	P	10/27/2011	18:29	LB57533
	Cadmium	0.5	+/-3.0	U	0.5	3.0	P	10/27/2011	18:29	LB57533
	Calcium	31.8	+/-1000.0	U	31.8	1000.0	P	10/27/2011	18:29	LB57533
	Chromium	1.1	+/-5.0	U	1.1	5.0	P	10/27/2011	18:29	LB57533
	Cobalt	5.8	+/-15.0	U	5.8	15.0	P	10/27/2011	18:29	LB57533
	Copper	8.2	+/-10.0	J	2.0	10.0	P	10/27/2011	18:29	LB57533
	Iron	20.4	+/-50.0	U	20.4	50.0	P	10/27/2011	18:29	LB57533
	Lead	2.6	+/-6.0	U	2.6	6.0	P	10/27/2011	18:29	LB57533
	Magnesium	32.5	+/-1000.0	U	32.5	1000.0	P	10/27/2011	18:29	LB57533
	Manganese	1.7	+/-10.0	U	1.7	10.0	P	10/27/2011	18:29	LB57533
	Nickel	4.2	+/-20.0	U	4.2	20.0	P	10/27/2011	18:29	LB57533
	Potassium	38.8	+/-1000.0	U	38.8	1000.0	P	10/27/2011	18:29	LB57533
	Selenium	4.8	+/-10.0	U	4.8	10.0	P	10/27/2011	18:29	LB57533
	Silver	1.5	+/-5.0	U	1.5	5.0	P	10/27/2011	18:29	LB57533
	Sodium	124.3	+/-1000.0	J	13.9	1000.0	P	10/27/2011	18:29	LB57533
	Thallium	9.7	+/-20.0	J	2.4	20.0	P	10/27/2011	18:29	LB57533
	Vanadium	6.1	+/-20.0	U	6.1	20.0	P	10/27/2011	18:29	LB57533

CHEMTECH

Metals

- 3a -

INITIAL AND CONTINUING CALIBRATION BLANK SUMMARY

Client: Tetra Tech NUS, Inc. **SDG No.:** C4270

Contract: TETR06 **Lab Code:** CHEM **Case No.:** C4270 **SAS No.:** C4270

Sample ID	Analyte	Result ug/L	Acceptance Limit	Conc Qual	MDL	CRQL	M	Analysis Date	Analysis Time	Run Number
CCB06	Zinc	6.5	+/-20.0	U	6.5	20.0	P	10/27/2011	18:29	LB57533
CCB07	Aluminum	6.5	+/-50.0	U	6.5	50.0	P	10/27/2011	19:01	LB57533
	Antimony	8.0	+/-25.0	U	8.0	25.0	P	10/27/2011	19:01	LB57533
	Arsenic	4.2	+/-10.0	U	4.2	10.0	P	10/27/2011	19:01	LB57533
	Barium	4.0	+/-50.0	U	4.0	50.0	P	10/27/2011	19:01	LB57533
	Beryllium	0.7	+/-3.0	U	0.7	3.0	P	10/27/2011	19:01	LB57533
	Cadmium	0.5	+/-3.0	U	0.5	3.0	P	10/27/2011	19:01	LB57533
	Calcium	31.8	+/-1000.0	U	31.8	1000.0	P	10/27/2011	19:01	LB57533
	Chromium	1.1	+/-5.0	U	1.1	5.0	P	10/27/2011	19:01	LB57533
	Cobalt	5.8	+/-15.0	U	5.8	15.0	P	10/27/2011	19:01	LB57533
	Copper	2.0	+/-10.0	U	2.0	10.0	P	10/27/2011	19:01	LB57533
	Iron	20.4	+/-50.0	U	20.4	50.0	P	10/27/2011	19:01	LB57533
	Lead	2.6	+/-6.0	U	2.6	6.0	P	10/27/2011	19:01	LB57533
	Magnesium	32.5	+/-1000.0	U	32.5	1000.0	P	10/27/2011	19:01	LB57533
	Manganese	1.7	+/-10.0	U	1.7	10.0	P	10/27/2011	19:01	LB57533
	Nickel	4.2	+/-20.0	U	4.2	20.0	P	10/27/2011	19:01	LB57533
	Potassium	38.8	+/-1000.0	U	38.8	1000.0	P	10/27/2011	19:01	LB57533
	Selenium	4.8	+/-10.0	U	4.8	10.0	P	10/27/2011	19:01	LB57533
	Silver	1.5	+/-5.0	U	1.5	5.0	P	10/27/2011	19:01	LB57533
	Sodium	100.1	+/-1000.0	J	13.9	1000.0	P	10/27/2011	19:01	LB57533
	Thallium	6.4	+/-20.0	J	2.4	20.0	P	10/27/2011	19:01	LB57533
	Vanadium	6.1	+/-20.0	U	6.1	20.0	P	10/27/2011	19:01	LB57533
	Zinc	6.5	+/-20.0	U	6.5	20.0	P	10/27/2011	19:01	LB57533
CCB08	Aluminum	6.5	+/-50.0	U	6.5	50.0	P	10/27/2011	19:33	LB57533
	Antimony	8.0	+/-25.0	U	8.0	25.0	P	10/27/2011	19:33	LB57533
	Arsenic	4.2	+/-10.0	U	4.2	10.0	P	10/27/2011	19:33	LB57533
	Barium	4.0	+/-50.0	U	4.0	50.0	P	10/27/2011	19:33	LB57533
	Beryllium	0.7	+/-3.0	U	0.7	3.0	P	10/27/2011	19:33	LB57533
	Cadmium	0.5	+/-3.0	U	0.5	3.0	P	10/27/2011	19:33	LB57533
	Calcium	31.8	+/-1000.0	U	31.8	1000.0	P	10/27/2011	19:33	LB57533
	Chromium	1.1	+/-5.0	U	1.1	5.0	P	10/27/2011	19:33	LB57533
	Cobalt	5.8	+/-15.0	U	5.8	15.0	P	10/27/2011	19:33	LB57533
	Copper	2.0	+/-10.0	U	2.0	10.0	P	10/27/2011	19:33	LB57533
	Iron	20.4	+/-50.0	U	20.4	50.0	P	10/27/2011	19:33	LB57533
	Lead	2.8	+/-6.0	J	2.6	6.0	P	10/27/2011	19:33	LB57533
	Magnesium	32.5	+/-1000.0	U	32.5	1000.0	P	10/27/2011	19:33	LB57533
	Manganese	1.7	+/-10.0	U	1.7	10.0	P	10/27/2011	19:33	LB57533
	Nickel	4.2	+/-20.0	U	4.2	20.0	P	10/27/2011	19:33	LB57533
	Potassium	38.8	+/-1000.0	U	38.8	1000.0	P	10/27/2011	19:33	LB57533
	Selenium	4.8	+/-10.0	U	4.8	10.0	P	10/27/2011	19:33	LB57533
	Silver	1.5	+/-5.0	U	1.5	5.0	P	10/27/2011	19:33	LB57533
	Sodium	56.6	+/-1000.0	J	13.9	1000.0	P	10/27/2011	19:33	LB57533

CHEMTECH

Metals

- 3a -

INITIAL AND CONTINUING CALIBRATION BLANK SUMMARY

Client: Tetra Tech NUS, Inc. **SDG No.:** C4270

Contract: TETR06 **Lab Code:** CHEM **Case No.:** C4270 **SAS No.:** C4270

Sample ID	Analyte	Result ug/L	Acceptance Limit	Conc Qual	MDL	CRQL	M	Analysis Date	Analysis Time	Run Number
CCB08	Thallium	5.7	+/-20.0	J	2.4	20.0	P	10/27/2011	19:33	LB57533
	Vanadium	6.1	+/-20.0	U	6.1	20.0	P	10/27/2011	19:33	LB57533
	Zinc	6.5	+/-20.0	U	6.5	20.0	P	10/27/2011	19:33	LB57533
CCB09	Aluminum	6.5	+/-50.0	U	6.5	50.0	P	10/27/2011	20:05	LB57533
	Antimony	8.0	+/-25.0	U	8.0	25.0	P	10/27/2011	20:05	LB57533
	Arsenic	4.2	+/-10.0	U	4.2	10.0	P	10/27/2011	20:05	LB57533
	Barium	4.0	+/-50.0	U	4.0	50.0	P	10/27/2011	20:05	LB57533
	Beryllium	0.7	+/-3.0	U	0.7	3.0	P	10/27/2011	20:05	LB57533
	Cadmium	0.5	+/-3.0	U	0.5	3.0	P	10/27/2011	20:05	LB57533
	Calcium	31.8	+/-1000.0	U	31.8	1000.0	P	10/27/2011	20:05	LB57533
	Chromium	1.1	+/-5.0	U	1.1	5.0	P	10/27/2011	20:05	LB57533
	Cobalt	5.8	+/-15.0	U	5.8	15.0	P	10/27/2011	20:05	LB57533
	Copper	2.0	+/-10.0	U	2.0	10.0	P	10/27/2011	20:05	LB57533
	Iron	20.4	+/-50.0	U	20.4	50.0	P	10/27/2011	20:05	LB57533
	Lead	2.6	+/-6.0	U	2.6	6.0	P	10/27/2011	20:05	LB57533
	Magnesium	32.5	+/-1000.0	U	32.5	1000.0	P	10/27/2011	20:05	LB57533
	Manganese	1.7	+/-10.0	U	1.7	10.0	P	10/27/2011	20:05	LB57533
	Nickel	4.2	+/-20.0	U	4.2	20.0	P	10/27/2011	20:05	LB57533
	Potassium	38.8	+/-1000.0	U	38.8	1000.0	P	10/27/2011	20:05	LB57533
	Selenium	4.8	+/-10.0	U	4.8	10.0	P	10/27/2011	20:05	LB57533
	Silver	1.5	+/-5.0	U	1.5	5.0	P	10/27/2011	20:05	LB57533
	Sodium	132.9	+/-1000.0	J	13.9	1000.0	P	10/27/2011	20:05	LB57533
	Thallium	5.2	+/-20.0	J	2.4	20.0	P	10/27/2011	20:05	LB57533
	Vanadium	6.1	+/-20.0	U	6.1	20.0	P	10/27/2011	20:05	LB57533
	Zinc	6.5	+/-20.0	U	6.5	20.0	P	10/27/2011	20:05	LB57533
CCB10	Aluminum	7.3	+/-50.0	J	6.5	50.0	P	10/27/2011	20:36	LB57533
	Antimony	8.0	+/-25.0	U	8.0	25.0	P	10/27/2011	20:36	LB57533
	Arsenic	4.2	+/-10.0	U	4.2	10.0	P	10/27/2011	20:36	LB57533
	Barium	4.0	+/-50.0	U	4.0	50.0	P	10/27/2011	20:36	LB57533
	Beryllium	0.7	+/-3.0	U	0.7	3.0	P	10/27/2011	20:36	LB57533
	Cadmium	0.5	+/-3.0	U	0.5	3.0	P	10/27/2011	20:36	LB57533
	Calcium	31.8	+/-1000.0	U	31.8	1000.0	P	10/27/2011	20:36	LB57533
	Chromium	1.1	+/-5.0	U	1.1	5.0	P	10/27/2011	20:36	LB57533
	Cobalt	5.8	+/-15.0	U	5.8	15.0	P	10/27/2011	20:36	LB57533
	Copper	2.0	+/-10.0	U	2.0	10.0	P	10/27/2011	20:36	LB57533
	Iron	20.4	+/-50.0	U	20.4	50.0	P	10/27/2011	20:36	LB57533
	Lead	2.6	+/-6.0	U	2.6	6.0	P	10/27/2011	20:36	LB57533
	Magnesium	32.5	+/-1000.0	U	32.5	1000.0	P	10/27/2011	20:36	LB57533
	Manganese	1.7	+/-10.0	U	1.7	10.0	P	10/27/2011	20:36	LB57533
	Nickel	4.2	+/-20.0	U	4.2	20.0	P	10/27/2011	20:36	LB57533
	Potassium	38.8	+/-1000.0	U	38.8	1000.0	P	10/27/2011	20:36	LB57533
	Selenium	4.8	+/-10.0	U	4.8	10.0	P	10/27/2011	20:36	LB57533

CHEMTECH

Metals

- 3a -

INITIAL AND CONTINUING CALIBRATION BLANK SUMMARY

Client: Tetra Tech NUS, Inc. **SDG No.:** C4270

Contract: TETR06 **Lab Code:** CHEM **Case No.:** C4270 **SAS No.:** C4270

Sample ID	Analyte	Result ug/L	Acceptance Limit	Conc Qual	MDL	CRQL	M	Analysis Date	Analysis Time	Run Number
CCB10	Silver	1.5	+/-5.0	U	1.5	5.0	P	10/27/2011	20:36	LB57533
	Sodium	134.6	+/-1000.0	J	13.9	1000.0	P	10/27/2011	20:36	LB57533
	Thallium	4.3	+/-20.0	J	2.4	20.0	P	10/27/2011	20:36	LB57533
	Vanadium	6.1	+/-20.0	U	6.1	20.0	P	10/27/2011	20:36	LB57533
	Zinc	6.5	+/-20.0	U	6.5	20.0	P	10/27/2011	20:36	LB57533
CCB11	Aluminum	6.5	+/-50.0	U	6.5	50.0	P	10/27/2011	21:08	LB57533
	Antimony	8.0	+/-25.0	U	8.0	25.0	P	10/27/2011	21:08	LB57533
	Arsenic	4.2	+/-10.0	U	4.2	10.0	P	10/27/2011	21:08	LB57533
	Barium	4.0	+/-50.0	U	4.0	50.0	P	10/27/2011	21:08	LB57533
	Beryllium	0.7	+/-3.0	U	0.7	3.0	P	10/27/2011	21:08	LB57533
	Cadmium	0.5	+/-3.0	U	0.5	3.0	P	10/27/2011	21:08	LB57533
	Calcium	31.8	+/-1000.0	U	31.8	1000.0	P	10/27/2011	21:08	LB57533
	Chromium	1.1	+/-5.0	U	1.1	5.0	P	10/27/2011	21:08	LB57533
	Cobalt	5.8	+/-15.0	U	5.8	15.0	P	10/27/2011	21:08	LB57533
	Copper	2.0	+/-10.0	U	2.0	10.0	P	10/27/2011	21:08	LB57533
	Iron	20.4	+/-50.0	U	20.4	50.0	P	10/27/2011	21:08	LB57533
	Lead	2.6	+/-6.0	U	2.6	6.0	P	10/27/2011	21:08	LB57533
	Magnesium	32.5	+/-1000.0	U	32.5	1000.0	P	10/27/2011	21:08	LB57533
	Manganese	1.7	+/-10.0	U	1.7	10.0	P	10/27/2011	21:08	LB57533
	Nickel	4.2	+/-20.0	U	4.2	20.0	P	10/27/2011	21:08	LB57533
	Potassium	38.8	+/-1000.0	U	38.8	1000.0	P	10/27/2011	21:08	LB57533
	Selenium	4.8	+/-10.0	U	4.8	10.0	P	10/27/2011	21:08	LB57533
	Silver	1.5	+/-5.0	U	1.5	5.0	P	10/27/2011	21:08	LB57533
	Sodium	59.9	+/-1000.0	J	13.9	1000.0	P	10/27/2011	21:08	LB57533
	Thallium	4.2	+/-20.0	J	2.4	20.0	P	10/27/2011	21:08	LB57533
	Vanadium	6.1	+/-20.0	U	6.1	20.0	P	10/27/2011	21:08	LB57533
	Zinc	6.5	+/-20.0	U	6.5	20.0	P	10/27/2011	21:08	LB57533

CHEMTECH

Metals
- 3b -
PREPARATION BLANK SUMMARY

Client: Tetra Tech NUS, Inc. **SDG No.:** C4270

Instrument: CV2

Sample ID	Analyte	Result (mg/Kg)	Acceptance Limit	Conc Qual	MDL mg/Kg	CRQL mg/Kg	M	Analysis Date	Analysis Time	Run
PB58748BL		**SOIL**		**Batch Number:**		**PB58748**		**Prep Date:**	**10/21/2011**	
	Mercury	0.002	<0.010	U	0.002	0.010	CV	10/25/2011	11:12	LB57471
PB58715BL		**WATER**		**Batch Number:**		**PB58715**		**Prep Date:**	**10/21/2011**	
	Aluminum	6.500	<50.000	U	6.500	50.000	P	10/27/2011	20:47	LB57533
	Antimony	8.000	<25.000	U	8.000	25.000	P	10/27/2011	20:47	LB57533
	Arsenic	4.200	<10.000	U	4.200	10.000	P	10/27/2011	20:47	LB57533
	Barium	4.000	<50.000	U	4.000	50.000	P	10/27/2011	20:47	LB57533
	Beryllium	0.700	<3.000	U	0.700	3.000	P	10/27/2011	20:47	LB57533
	Cadmium	0.500	<3.000	U	0.500	3.000	P	10/27/2011	20:47	LB57533
	Calcium	31.800	<1000.000	U	31.800	1000.000	P	10/27/2011	20:47	LB57533
	Chromium	1.100	<5.000	U	1.100	5.000	P	10/27/2011	20:47	LB57533
	Cobalt	5.800	<15.000	U	5.800	15.000	P	10/27/2011	20:47	LB57533
	Copper	2.000	<10.000	U	2.000	10.000	P	10/27/2011	20:47	LB57533
	Iron	20.400	<50.000	U	20.400	50.000	P	10/27/2011	20:47	LB57533
	Lead	2.600	<6.000	U	2.600	6.000	P	10/27/2011	20:47	LB57533
	Magnesium	32.500	<1000.000	U	32.500	1000.000	P	10/27/2011	20:47	LB57533
	Manganese	1.700	<10.000	U	1.700	10.000	P	10/27/2011	20:47	LB57533
	Nickel	4.200	<20.000	U	4.200	20.000	P	10/27/2011	20:47	LB57533
	Potassium	38.800	<1000.000	U	38.800	1000.000	P	10/27/2011	20:47	LB57533
	Selenium	4.800	<10.000	U	4.800	10.000	P	10/27/2011	20:47	LB57533
	Silver	1.500	<5.000	U	1.500	5.000	P	10/27/2011	20:47	LB57533
	Sodium	137.497	<1000.000	J	13.900	1000.000	P	10/27/2011	20:47	LB57533
	Thallium	2.400	<20.000	U	2.400	20.000	P	10/27/2011	20:47	LB57533
	Vanadium	6.100	<20.000	U	6.100	20.000	P	10/27/2011	20:47	LB57533
	Zinc	6.500	<20.000	U	6.500	20.000	P	10/27/2011	20:47	LB57533

CHEMTECH

Metals
- 5a -
MATRIX SPIKE SUMMARY

Client: Tetra Tech NUS, Inc. **Level:** LOW **SDG No.:** C4270

Contract: TETR06 **Lab Code:** CHEM **Case No.:** C4270 **SAS No.:** C4270

Matrix: SOIL **Sample ID:** C4270-03 **Client ID:** FT-SB407-0608S

Percent Solids for Sample: 92.2 **Spiked ID:** C4270-04S **Percent Solids for Spike Sample:** 92.2

Analyte	Units	Acceptance Limit %R	Spiked Result	C	Sample Result	C	Spike Added	% Recovery	Qual	M
Aluminum	mg/Kg	80 - 120	5949.3230		5820.4570		216.92	59.4		P
Antimony	mg/Kg	80 - 120	79.8643		0.6074	U	86.77	92.0		P
Arsenic	mg/Kg	80 - 114	82.1979		1.5793		86.77	92.9		P
Barium	mg/Kg	80 - 120	31.9798		9.6589		21.69	102.9		P
Beryllium	mg/Kg	80 - 112	21.4613		0.1253	J	21.69	98.4		P
Cadmium	mg/Kg	80 - 114	20.2210		0.1854	J	21.69	92.4		P
Calcium	mg/Kg	80 - 120	197.1960		68.3538	J	108.46	118.8		P
Chromium	mg/Kg	80 - 120	47.0200		5.8710		43.38	94.9		P
Cobalt	mg/Kg	80 - 119	21.3396		1.1397	J	21.69	93.1		P
Copper	mg/Kg	80 - 120	35.0188		2.8448		32.54	98.9		P
Iron	mg/Kg	80 - 120	4655.0400		4416.9970		325.38	73.2		P
Lead	mg/Kg	80 - 120	104.7777		3.2705		108.46	93.6		P
Magnesium	mg/Kg	80 - 120	578.3948		376.4560		216.92	93.1		P
Manganese	mg/Kg	80 - 120	40.9924		19.1124		21.69	100.9		P
Mercury	mg/Kg	34 - 153	0.2495		0.0131		0.22	107.5		CV
Nickel	mg/Kg	80 - 120	52.2246		2.1123	J	54.23	92.4		P
Potassium	mg/Kg	80 - 120	1053.6550		31.3063	J	1084.60	94.3		P
Selenium	mg/Kg	80 - 105	198.2021		0.4447	U	216.92	91.4		P
Silver	mg/Kg	75 - 120	7.8801		0.1627	U	8.13	96.9		P
Sodium	mg/Kg	80 - 120	416.2468		93.3694	J	325.38	99.2		P
Thallium	mg/Kg	80 - 116	203.5871		0.2928	U	216.92	93.9		P
Vanadium	mg/Kg	80 - 120	40.9733		9.2564		32.54	97.5		P
Zinc	mg/Kg	80 - 120	29.6600		9.6919		21.69	92.1		P

CHEMTECH

Metals
- 5a -
MATRIX SPIKE DUPLICATE SUMMARY

Client: Tetra Tech NUS, Inc. **Level:** LOW **SDG No.:** C4270

Contract: TETR06 **Lab Code:** CHEM **Case No.:** C4270 **SAS No.:** C4270

Matrix: SOIL **Sample ID:** C4270-03 **Client ID:** FT-SB407-0608SD

Percent Solids for Sample: 92.2 **Spiked ID:** C4270-05SD **Percent Solids for Spike Sample:** 92.2

Analyte	Units	Acceptance Limit %R	MSD Result	C	Sample Result	C	Spike Added	% Recovery	Qual	M
Aluminum	mg/Kg	80 - 120	5955.3010		5820.4570		216.92	62.2		P
Antimony	mg/Kg	80 - 120	79.7304		0.6074	U	86.77	91.9		P
Arsenic	mg/Kg	80 - 114	82.0691		1.5793		86.77	92.8		P
Barium	mg/Kg	80 - 120	31.9920		9.6589		21.69	103.0		P
Beryllium	mg/Kg	80 - 112	21.4797		0.1253	J	21.69	98.5		P
Cadmium	mg/Kg	80 - 114	20.2494		0.1854	J	21.69	92.5		P
Calcium	mg/Kg	80 - 120	196.5575		68.3538	J	108.46	118.2		P
Chromium	mg/Kg	80 - 120	47.2142		5.8710		43.38	95.3		P
Cobalt	mg/Kg	80 - 119	21.4144		1.1397	J	21.69	93.5		P
Copper	mg/Kg	80 - 120	35.0150		2.8448		32.54	98.9		P
Iron	mg/Kg	80 - 120	4665.8700		4416.9970		325.38	76.5		P
Lead	mg/Kg	80 - 120	104.5770		3.2705		108.46	93.4		P
Magnesium	mg/Kg	80 - 120	581.4001		376.4560		216.92	94.5		P
Manganese	mg/Kg	80 - 120	41.0682		19.1124		21.69	101.2		P
Mercury	mg/Kg	34 - 153	0.2625		0.0131		0.22	113.4		CV
Nickel	mg/Kg	80 - 120	52.2502		2.1123	J	54.23	92.5		P
Potassium	mg/Kg	80 - 120	1055.7030		31.3063	J	1084.60	94.4		P
Selenium	mg/Kg	80 - 105	196.6995		0.4447	U	216.92	90.7		P
Silver	mg/Kg	75 - 120	7.9075		0.1627	U	8.13	97.3		P
Sodium	mg/Kg	80 - 120	413.6277		93.3694	J	325.38	98.4		P
Thallium	mg/Kg	80 - 116	203.8197		0.2928	U	216.92	94.0		P
Vanadium	mg/Kg	80 - 120	41.0142		9.2564		32.54	97.6		P
Zinc	mg/Kg	80 - 120	28.9320		9.6919		21.69	88.7		P

CHEMTECH

Metals
- 5b -

Client: Tetra Tech NUS, Inc. **SDG No.:** C4270

Contract: TETR06 **Lab Code:** CHEM **Case No.:** C4270 **SAS No.:** C4270

Matrix: WATER **Level:** LOW **Client ID:**

Sample ID: **Spiked ID:**

Analyte	Units	Acceptance Limit %R	C	Sample Result	C	Spike Added	% Recovery	Qual	M

CHEMTECH

Metals

- 6 -

DUPLICATE SAMPLE SUMMARY

Client: Tetra Tech NUS, Inc. **Level:** LOW **SDG No.:** C4270

Contract: TETR06 **Lab Code:** CHEM **Case No.:** C4270 **SAS No.:** C4270

Matrix: SOIL **Sample ID:** C4270-03 **Client ID:** FT-SB407-0608D

Percent Solids for Sample: 92.2 **Duplicate ID** C4270-03D **Percent Solids for Spike Sample:** 92.2

Analyte	Units	Acceptance Limit	Sample Result	C	Duplicate Result	C	RPD	Qual	M
Aluminum	mg/Kg	20	5820.4570		5810.0220		0.2		P
Antimony	mg/Kg	20	0.6074	U	0.6074	U			P
Arsenic	mg/Kg	20	1.5793		1.5005		5.1		P
Barium	mg/Kg	20	9.6589		9.6542		0.0		P
Beryllium	mg/Kg	20	0.1253	J	0.1249	J	0.3		P
Cadmium	mg/Kg	20	0.1854	J	0.1896	J	2.2		P
Calcium	mg/Kg	20	68.3538	J	64.4335	J	5.9		P
Chromium	mg/Kg	20	5.8710		5.8816		0.2		P
Cobalt	mg/Kg	20	1.1397	J	1.1653	J	2.2		P
Copper	mg/Kg	20	2.8448		2.7459		3.5		P
Iron	mg/Kg	20	4416.9970		4388.2090		0.7		P
Lead	mg/Kg	20	3.2705		3.1534		3.6		P
Magnesium	mg/Kg	20	376.4560		374.4605		0.5		P
Manganese	mg/Kg	20	19.1124		19.1566		0.2		P
Mercury	mg/Kg	20	0.0131		0.0022	U	200.0		CV
Nickel	mg/Kg	20	2.1123	J	2.1178	J	0.3		P
Potassium	mg/Kg	20	31.3063	J	32.4947	J	3.7		P
Selenium	mg/Kg	20	0.4447	U	0.8581	J	200.0		P
Silver	mg/Kg	20	0.1627	U	0.1627	U			P
Sodium	mg/Kg	20	93.3694	J	94.8045	J	1.5		P
Thallium	mg/Kg	20	0.2928	U	0.2928	U			P
Vanadium	mg/Kg	20	9.2564		9.2480		0.1		P
Zinc	mg/Kg	20	9.6919		9.3626		3.5		P

"A control limit of ±20% RPD for each matrix applies for sample values greater than 10 times Detection Limit"

CHEMTECH

Metals

- 6 -

DUPLICATE SAMPLE SUMMARY

Client: Tetra Tech NUS, Inc. **Level:** LOW **SDG No.:** C4270

Contract: TETR06 **Lab Code:** CHEM **Case No.:** C4270 **SAS No.:** C4270

Matrix: SOIL **Sample ID:** C4270-03 **Client ID:** FT-SB407-0608SD

Percent Solids for Sample: 92.2 **Duplicate ID** C4270-05SD **Percent Solids for Spike Sample:** 92.2

Analyte	Units	Acceptance Limit	Sample Result	C	Duplicate Result	C	RPD	Qual	M
Aluminum	mg/Kg	20	5949.3230		5955.3010		0.1		P
Antimony	mg/Kg	20	79.8643		79.7304		0.2		P
Arsenic	mg/Kg	20	82.1979		82.0691		0.2		P
Barium	mg/Kg	20	31.9798		31.9920		0.0		P
Beryllium	mg/Kg	20	21.4613		21.4797		0.1		P
Cadmium	mg/Kg	20	20.2210		20.2494		0.1		P
Calcium	mg/Kg	20	197.1960		196.5575		0.3		P
Chromium	mg/Kg	20	47.0200		47.2142		0.4		P
Cobalt	mg/Kg	20	21.3396		21.4144		0.3		P
Copper	mg/Kg	20	35.0188		35.0150		0.0		P
Iron	mg/Kg	20	4655.0400		4665.8700		0.2		P
Lead	mg/Kg	20	104.7777		104.5770		0.2		P
Magnesium	mg/Kg	20	578.3948		581.4001		0.5		P
Manganese	mg/Kg	20	40.9924		41.0682		0.2		P
Mercury	mg/Kg	20	0.2495		0.2625		5.1		CV
Nickel	mg/Kg	20	52.2246		52.2502		0.0		P
Potassium	mg/Kg	20	1053.6550		1055.7030		0.2		P
Selenium	mg/Kg	20	198.2021		196.6995		0.8		P
Silver	mg/Kg	20	7.8801		7.9075		0.3		P
Sodium	mg/Kg	20	416.2468		413.6277		0.6		P
Thallium	mg/Kg	20	203.5871		203.8197		0.1		P
Vanadium	mg/Kg	20	40.9733		41.0142		0.1		P
Zinc	mg/Kg	20	29.6600		28.9320		2.5		P

"A control limit of ±20% RPD for each matrix applies for sample values greater than 10 times Detection Limit"

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DATA PACKAGE

GC SEMI-VOLATILES

PROJECT NAME : CTO WE63

TETRA TECH NUS, INC.

661 Anderson Drive

Pittsburgh, Pennsylvania - 15220-2745

Phone No: 4129218361

ORDER ID : C4270

ATTENTION : David Brayack

ACCREDITED IN ACCORDANCE WITH nelac

DoD ELAP

CHEMTECH 284 Sheffield Street, Mountainside, New Jersey 07092 Phone : 908 789 8900 Fax : 908 789 8922

Cover Page

Order ID : C4270

Project ID : CTO WE63

Client : Tetra Tech NUS, Inc.

Lab Sample Number	Client Sample Number
C4270-01	FT-SB401-0608
C4270-02	FT-SB406-0406
C4270-03	FT-SB407-0608
C4270-04	C4270-03MS
C4270-05	C4270-03MSD
C4270-06	FT-SB405-0204
C4270-07	FT-SB405-0608
C4270-08	FT-SB403-0608
C4270-09	FT-SB402-0608
C4270-10	FT-SB404-0305
C4270-11	FT-SB404-0608
C4270-12	FT-SBDUP01-20111018
C4270-13	FT-SB410-1416
C4270-14	FT-SB413-0002
C4270-15	FT-SB413-0810
C4270-16	FT-SB412-0204
C4270-17	FT-SB412-1214
C4270-18	FT-SB411-0002
C4270-19	FT-SB408-1517
C4270-20	FT-SB409-1315
C4270-21	FT-SBDUP02-20111019

I certify that the data package is in compliance with the terms and conditions of the contract,both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hard copy data package has been authorized by the laboratory manager or his designee, as verified by the following signature.

Signature : _____

NYDOH CERTIFICATION NO - 11376

NJDEP CERTIFICATION NO - 20012

Table of Contents

DATA SUMMARY 9

PESTICIDE/PCB DATA 66

PESTICIDE/PCB QC DATA 67

PESTICIDE/PCB SAMPLE DATA 72

PESTICIDE/PCB CALIBRATION DATA 267

PESTICIDE/PCB RAW QC DATA 354

PESTICIDE/PCB MISCELLANEOUSDATA 403

SHIPPING AND RECEIVING DOCUMENTATION 444

END OF ANALYTICAL RESULTS 451

CHEMTECH

CASE NARRATIVE

Tetra Tech NUS, Inc.
Project Name: CTO WE63
Project # N/A
Chemtech Project # C4270
Test Name: PCB Group1

A. Number of Samples and Date of Receipt:
21 Solid samples were received on 10/20/2011.

B. Parameters
According to the Chain of Custody document, the following analyses were requested: Cyanide, Hexavalent Chromium, Mercury, Metals ICP-TAL, METALS-TAL, PCB Group1, SVOC-PAH, Trivalent Chromium and VOCMS Group1. This data package contains results for PCB Group1.

C. Analytical Techniques:
The analyses were performed on instrument GCECD_C. The front column is RTX-CLPest which is 30 meters, 0.32 mm ID, 0.5 um df,Catalog # 11139. The rear column is RTX-CLPestII which is 30 meters, 0.32 mm ID, 0.25 um df, Catalog # 11324.The analysis of PCB Group1s was based on method 8082 and extraction was done based on method 3541.

D. QA/ QC Samples:
The Holding Times were met for all analysis.
The Surrogate recoveries met the acceptable criteria.
The Retention Times were acceptable for all samples.
The MS recoveries met the requirements for all compounds.
The MSD recoveries met the acceptable requirements.
The RPD recoveries met criteria.
The Blank Spike met requirements for all samples.
The Blank analysis did not indicate the presence of lab contamination.
The Initial Calibration met the requirements.
The Continuous Calibration met the requirements.

E. Additional Comments:
Sample FT-SB413-0002 had hit for AR1248 and was re-analyzed under 5 point curve of AR1248.

F. Manual Integration Comments:
Please refer to the Manual integration Report included with the Run Logs for information on the manual integrations performed.

I certify that the data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. The laboratory manager or his designee, as verified by the following signature has authorized release of the data contained in this hard copy data package.

Signature_____

I Mildred V. Reyes, as the designated Quality Assurance ~~Officer~~ Supervisor, hereby attest that all electronic deliverables have been thoroughly reviewed and are in agreement with the associated hardcopy data. The enclosed electronic files have been reviewed for accuracy (including significant figures), completeness and format. The laboratory will be responsible for any labor time necessary to correct enclosed electronic deliverables that have been found to be in error. I can be reached at (908) 789-8900 if there are any questions or problems with the enclosed electronic deliverables.

Signature: Mildred V Reyes Title: QA/QC Supervisor Date: 11/21/11

CHEMTECH

284 Sheffield Street Mountainside NJ 07092
Tel. 908-789-8900 Fax: 908-789-8922

DATA REPORTING QUALIFIERS- ORGANIC

For reporting results, the following " Result Qualifiers" are used:

Value	If the result is a value greater than or equal to the detection limit, report the value
U	Indicates the compound was analyzed for but was not detected. Report the minimum detection limit for the sample with the U. This is the detection limit attainable for this particular sample based on any concentration or dilution that may have been required.
ND	Indicates the compound was analyzed for but was not detected
J	Indicates an estimated value**.** This flag is used: (1) When estimating a concentration for a tentatively identified compound (library search hits, where a 1:1 response is assumed.) (2) When the mass spectral data indicated the identification, however the result was less than the specified detection limit greater than zero. If the detection limit was 10ug/L, and a concentration of 3ug/L was calculated, report as 3 J.
B	Indicates the analyte was found in the blank as well as the sample.
E	Indicates the analyte 's concentration exceeds the calibrated range of the instrument for that specific analysis.
D	This flag identifies all compounds identified in an analysis at a secondary dilution factor.
P	This flag is used for Pesticide/PCB target analyte when there is >25% difference for detected concentrations between the two GC columns.
N	This flag indicates presumptive evidence of a compound. This is only used for tentatively identified compounds (TICs), where the identification is based on a mass spectral library search. For generic characterization of a TIC, such as chlorinated hydrocarbon, the flag is not used.
A	This flag indicates that a Tentatively Identified Compound is a suspected Aldol-condensation product.

APPENDIX A

QA REVIEW GENERAL DOCUMENTATION

Project #:__C4270_____

Completed

For thorough review, the report must have the following:

GENERAL:

Are all original paperwork present (chain of custody, record of communication, airbill, sample management lab chronicle, login page) ___✓_____
Check chain-of-custody for proper relinquish/return of samples ____✓_____
Is the chain of custody signed and complete ____✓_____
Check internal chain-of-custody for proper relinquish/return of samples /sample extracts _____✓____
Collect information for each project id from server. Were all requirements followed _____✓_____

COVER PAGE:

Do numbers of samples correspond to the number of samples in the Chain of Custody and on login page ___✓_____
Do lab numbers and client Ids on cover page agree with the Chain of Custody ____✓_____

CHAIN OF CUSTODY:

Do requested analyses on Chain of Custody agree with form I results ___✓_____
Do requested analyses on Chain of Custody agree with the log-in page ____✓_____
Were the correct method log-in for analysis according to the Analytical Request and Chain of Custody ____✓_____
Were the samples received within hold time ____✓_____
Were any problems found with the samples at arrival recorded in the Sample Management Laboratory Chronicle ____✓_____

ANALYTICAL:

Was method requirement followed? _____✓_____
Was client requirement followed? ____✓_____
Does the case narrative summarize all QC failure? _____✓_____
All runlogs reviewed for manual integration requirements _____✓_____
All manual calculations and /or hand notations verified _____✓_____

1st Level QA Review Signature:__ _____ Date:_11/2111_____

2nd Level QA Review Signature:_____ Date:_____

DATA SUMMARY

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	10/18/11
Project:	CTO WE63	Date Received:	10/20/11
Client Sample ID:	FT-SB401-0608	SDG No.:	C4270
Lab Sample ID:	C4270-01	Matrix:	SOIL
Analytical Method:	SW8082	% Moisture:	7 Decanted:
Sample Wt/Vol:	30.11 Units: g	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PCB Group1
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH : N/A		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PC004784.D	1	10/20/11	10/24/11	PB58708

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
12674-11-2	Aroclor-1016	9	U	3.7	18	ug/Kg
11104-28-2	Aroclor-1221	9	U	3.6	18	ug/Kg
11141-16-5	Aroclor-1232	9	U	8	18	ug/Kg
53469-21-9	Aroclor-1242	9	U	3.6	18	ug/Kg
12672-29-6	Aroclor-1248	9	U	7.1	18	ug/Kg
11097-69-1	Aroclor-1254	9	U	1.6	18	ug/Kg
37324-23-5	Aroclor-1262	9	U	0	18	ug/Kg
11100-14-4	Aroclor-1268	9	U	0	18	ug/Kg
11096-82-5	Aroclor-1260	9	U	4.4	18	ug/Kg
SURROGATES						
877-09-8	Tetrachloro-m-xylene	20.7		10 - 166	104%	SPK: 20
2051-24-3	Decachlorobiphenyl	19.9		60 - 125	100%	SPK: 20

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
P = Indicates >25% difference for detected concentrations between the two GC columns

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution
S = Indicates estimated value where valid five-point calibration was not performed prior to analyte detection in sample.

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	10/18/11
Project:	CTO WE63	Date Received:	10/20/11
Client Sample ID:	FT-SB406-0406	SDG No.:	C4270
Lab Sample ID:	C4270-02	Matrix:	SOIL
Analytical Method:	SW8082	% Moisture:	4 Decanted:
Sample Wt/Vol:	30.06 Units: g	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PCB Group1
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH : N/A		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PC004785.D	1	10/20/11	10/24/11	PB58708

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
12674-11-2	Aroclor-1016	9	U	3.6	18	ug/Kg
11104-28-2	Aroclor-1221	9	U	3.5	18	ug/Kg
11141-16-5	Aroclor-1232	9	U	7.8	18	ug/Kg
53469-21-9	Aroclor-1242	9	U	3.5	18	ug/Kg
12672-29-6	Aroclor-1248	9	U	6.9	18	ug/Kg
11097-69-1	Aroclor-1254	9	U	1.5	18	ug/Kg
37324-23-5	Aroclor-1262	9	U	0	18	ug/Kg
11100-14-4	Aroclor-1268	9	U	0	18	ug/Kg
11096-82-5	Aroclor-1260	9	U	4.3	18	ug/Kg
SURROGATES						
877-09-8	Tetrachloro-m-xylene	21.5		10 - 166	108%	SPK: 20
2051-24-3	Decachlorobiphenyl	22		60 - 125	110%	SPK: 20

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
P = Indicates >25% difference for detected concentrations between the two GC columns

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution
S = Indicates estimated value where valid five-point calibration was not performed prior to analyte detection in sample.

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	10/18/11
Project:	CTO WE63	Date Received:	10/20/11
Client Sample ID:	FT-SB407-0608	SDG No.:	C4270
Lab Sample ID:	C4270-03	Matrix:	SOIL
Analytical Method:	SW8082	% Moisture:	8 Decanted:
Sample Wt/Vol:	30.04 Units: g	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PCB Group1
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH : N/A		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PC004786.D	1	10/20/11	10/24/11	PB58708

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
12674-11-2	Aroclor-1016	9	U	3.8	18	ug/Kg
11104-28-2	Aroclor-1221	9	U	3.7	18	ug/Kg
11141-16-5	Aroclor-1232	9	U	8.1	18	ug/Kg
53469-21-9	Aroclor-1242	9	U	3.7	18	ug/Kg
12672-29-6	Aroclor-1248	9	U	7.2	18	ug/Kg
11097-69-1	Aroclor-1254	9	U	1.6	18	ug/Kg
37324-23-5	Aroclor-1262	9	U	0	18	ug/Kg
11100-14-4	Aroclor-1268	9	U	0	18	ug/Kg
11096-82-5	Aroclor-1260	9	U	4.5	18	ug/Kg
SURROGATES						
877-09-8	Tetrachloro-m-xylene	21.8		10 - 166	109%	SPK: 20
2051-24-3	Decachlorobiphenyl	22.1		60 - 125	111%	SPK: 20

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
P = Indicates >25% difference for detected concentrations between the two GC columns

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution
S = Indicates estimated value where valid five-point calibration was not performed prior to analyte detection in sample.

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	10/18/11
Project:	CTO WE63	Date Received:	10/20/11
Client Sample ID:	FT-SB403-0608	SDG No.:	C4270
Lab Sample ID:	C4270-08	Matrix:	SOIL
Analytical Method:	SW8082	% Moisture:	4 Decanted:
Sample Wt/Vol:	30.03 Units: g	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PCB Group1
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH : N/A		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PC004789.D	1	10/20/11	10/24/11	PB58708

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
12674-11-2	Aroclor-1016	9	U	3.6	18	ug/Kg
11104-28-2	Aroclor-1221	9	U	3.5	18	ug/Kg
11141-16-5	Aroclor-1232	9	U	7.8	18	ug/Kg
53469-21-9	Aroclor-1242	9	U	3.5	18	ug/Kg
12672-29-6	Aroclor-1248	9	U	6.9	18	ug/Kg
11097-69-1	Aroclor-1254	9	U	1.6	18	ug/Kg
37324-23-5	Aroclor-1262	9	U	0	18	ug/Kg
11100-14-4	Aroclor-1268	9	U	0	18	ug/Kg
11096-82-5	Aroclor-1260	9	U	4.3	18	ug/Kg
SURROGATES						
877-09-8	Tetrachloro-m-xylene	23.3		10 - 166	116%	SPK: 20
2051-24-3	Decachlorobiphenyl	22.3		60 - 125	112%	SPK: 20

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
P = Indicates >25% difference for detected concentrations between the two GC columns

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution
S = Indicates estimated value where valid five-point calibration was not performed prior to analyte detection in sample.

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	10/19/11
Project:	CTO WE63	Date Received:	10/20/11
Client Sample ID:	FT-SB402-0608	SDG No.:	C4270
Lab Sample ID:	C4270-09	Matrix:	SOIL
Analytical Method:	SW8082	% Moisture:	3 Decanted:
Sample Wt/Vol:	30.05 Units: g	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PCB Group1
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH : N/A		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PC004790.D	1	10/20/11	10/24/11	PB58708

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
12674-11-2	Aroclor-1016	8.5	U	3.6	17	ug/Kg
11104-28-2	Aroclor-1221	8.5	U	3.5	17	ug/Kg
11141-16-5	Aroclor-1232	8.5	U	7.7	17	ug/Kg
53469-21-9	Aroclor-1242	8.5	U	3.5	17	ug/Kg
12672-29-6	Aroclor-1248	8.5	U	6.8	17	ug/Kg
11097-69-1	Aroclor-1254	8.5	U	1.5	17	ug/Kg
37324-23-5	Aroclor-1262	8.5	U	0	17	ug/Kg
11100-14-4	Aroclor-1268	8.5	U	0	17	ug/Kg
11096-82-5	Aroclor-1260	8.5	U	4.2	17	ug/Kg
SURROGATES						
877-09-8	Tetrachloro-m-xylene	22		10 - 166	110%	SPK: 20
2051-24-3	Decachlorobiphenyl	22		60 - 125	110%	SPK: 20

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
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N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution
S = Indicates estimated value where valid five-point calibration was not performed prior to analyte detection in sample.

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	10/18/11
Project:	CTO WE63	Date Received:	10/20/11
Client Sample ID:	FT-SBDUP01-20111018	SDG No.:	C4270
Lab Sample ID:	C4270-12	Matrix:	SOIL
Analytical Method:	SW8082	% Moisture:	4 Decanted:
Sample Wt/Vol:	30.1 Units: g	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PCB Group1
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH : N/A		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PC004791.D	1	10/20/11	10/24/11	PB58708

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
12674-11-2	Aroclor-1016	9	U	3.6	18	ug/Kg
11104-28-2	Aroclor-1221	9	U	3.5	18	ug/Kg
11141-16-5	Aroclor-1232	9	U	7.8	18	ug/Kg
53469-21-9	Aroclor-1242	9	U	3.5	18	ug/Kg
12672-29-6	Aroclor-1248	9	U	6.8	18	ug/Kg
11097-69-1	Aroclor-1254	9	U	1.5	18	ug/Kg
37324-23-5	Aroclor-1262	9	U	0	18	ug/Kg
11100-14-4	Aroclor-1268	9	U	0	18	ug/Kg
11096-82-5	Aroclor-1260	9	U	4.3	18	ug/Kg
SURROGATES						
877-09-8	Tetrachloro-m-xylene	21.1		10 - 166	106%	SPK: 20
2051-24-3	Decachlorobiphenyl	22.3		60 - 125	112%	SPK: 20

U = Not Detected
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* = Values outside of QC limits
D = Dilution
S = Indicates estimated value where valid five-point calibration was not performed prior to analyte detection in sample.

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	10/19/11
Project:	CTO WE63	Date Received:	10/20/11
Client Sample ID:	FT-SB413-0002	SDG No.:	C4270
Lab Sample ID:	C4270-14	Matrix:	SOIL
Analytical Method:	SW8082	% Moisture:	8 Decanted:
Sample Wt/Vol:	30.07 Units: g	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PCB Group1
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH : N/A		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PC004794.D	1	10/20/11	10/24/11	PB58708

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
12674-11-2	Aroclor-1016	9	U	3.8	18	ug/Kg
11104-28-2	Aroclor-1221	9	U	3.7	18	ug/Kg
11141-16-5	Aroclor-1232	9	U	8.1	18	ug/Kg
53469-21-9	Aroclor-1242	9	U	3.7	18	ug/Kg
12672-29-6	Aroclor-1248	20		7.1	18	ug/Kg
11097-69-1	Aroclor-1254	9	U	1.6	18	ug/Kg
37324-23-5	Aroclor-1262	9	U	0	18	ug/Kg
11100-14-4	Aroclor-1268	9	U	0	18	ug/Kg
11096-82-5	Aroclor-1260	9	U	4.5	18	ug/Kg
SURROGATES						
877-09-8	Tetrachloro-m-xylene	20.3		10 - 166	101%	SPK: 20
2051-24-3	Decachlorobiphenyl	19.4		60 - 125	97%	SPK: 20

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
P = Indicates >25% difference for detected concentrations between the two GC columns

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution
S = Indicates estimated value where valid five-point calibration was not performed prior to analyte detection in sample.

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	10/19/11
Project:	CTO WE63	Date Received:	10/20/11
Client Sample ID:	FT-SB413-0002RE	SDG No.:	C4270
Lab Sample ID:	C4270-14RE	Matrix:	SOIL
Analytical Method:	SW8082	% Moisture:	8 Decanted:
Sample Wt/Vol:	30.07 Units: g	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PCB Group1
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH : N/A		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PC005042.D	1	10/20/11	11/04/11	PB58708

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
12674-11-2	Aroclor-1016	9	U	3.8	18	ug/Kg
11104-28-2	Aroclor-1221	9	U	3.7	18	ug/Kg
11141-16-5	Aroclor-1232	9	U	8.1	18	ug/Kg
53469-21-9	Aroclor-1242	9	U	3.7	18	ug/Kg
12672-29-6	Aroclor-1248	22		7.1	18	ug/Kg
11097-69-1	Aroclor-1254	9	U	1.6	18	ug/Kg
37324-23-5	Aroclor-1262	9	U	0	18	ug/Kg
11100-14-4	Aroclor-1268	9	U	0	18	ug/Kg
11096-82-5	Aroclor-1260	9	U	4.5	18	ug/Kg
SURROGATES						
877-09-8	Tetrachloro-m-xylene	19.3		10 - 166	97%	SPK: 20
2051-24-3	Decachlorobiphenyl	18.1		60 - 125	91%	SPK: 20

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
P = Indicates >25% difference for detected concentrations between the two GC columns

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution
S = Indicates estimated value where valid five-point calibration was not performed prior to analyte detection in sample.

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	10/19/11
Project:	CTO WE63	Date Received:	10/20/11
Client Sample ID:	FT-SB413-0810	SDG No.:	C4270
Lab Sample ID:	C4270-15	Matrix:	SOIL
Analytical Method:	SW8082	% Moisture:	8 Decanted:
Sample Wt/Vol:	30.04 Units: g	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PCB Group1
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH : N/A		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PC004795.D	1	10/20/11	10/24/11	PB58708

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
12674-11-2	Aroclor-1016	9	U	3.8	18	ug/Kg
11104-28-2	Aroclor-1221	9	U	3.7	18	ug/Kg
11141-16-5	Aroclor-1232	9	U	8.1	18	ug/Kg
53469-21-9	Aroclor-1242	9	U	3.7	18	ug/Kg
12672-29-6	Aroclor-1248	9	U	7.2	18	ug/Kg
11097-69-1	Aroclor-1254	9	U	1.6	18	ug/Kg
37324-23-5	Aroclor-1262	9	U	0	18	ug/Kg
11100-14-4	Aroclor-1268	9	U	0	18	ug/Kg
11096-82-5	Aroclor-1260	9	U	4.5	18	ug/Kg
SURROGATES						
877-09-8	Tetrachloro-m-xylene	16.6		10 - 166	83%	SPK: 20
2051-24-3	Decachlorobiphenyl	16.6		60 - 125	83%	SPK: 20

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
P = Indicates >25% difference for detected concentrations between the two GC columns

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution
S = Indicates estimated value where valid five-point calibration was not performed prior to analyte detection in sample.

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	10/19/11
Project:	CTO WE63	Date Received:	10/20/11
Client Sample ID:	FT-SB412-1214	SDG No.:	C4270
Lab Sample ID:	C4270-17	Matrix:	SOIL
Analytical Method:	SW8082	% Moisture:	5 Decanted:
Sample Wt/Vol:	30.02 Units: g	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PCB Group1
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH : N/A		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PC004796.D	1	10/20/11	10/24/11	PB58708

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
12674-11-2	Aroclor-1016	9	U	3.7	18	ug/Kg
11104-28-2	Aroclor-1221	9	U	3.6	18	ug/Kg
11141-16-5	Aroclor-1232	9	U	7.9	18	ug/Kg
53469-21-9	Aroclor-1242	9	U	3.6	18	ug/Kg
12672-29-6	Aroclor-1248	9	U	6.9	18	ug/Kg
11097-69-1	Aroclor-1254	9	U	1.6	18	ug/Kg
37324-23-5	Aroclor-1262	9	U	0	18	ug/Kg
11100-14-4	Aroclor-1268	9	U	0	18	ug/Kg
11096-82-5	Aroclor-1260	9	U	4.3	18	ug/Kg
SURROGATES						
877-09-8	Tetrachloro-m-xylene	19.8		10 - 166	99%	SPK: 20
2051-24-3	Decachlorobiphenyl	20.9		60 - 125	105%	SPK: 20

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
P = Indicates >25% difference for detected concentrations between the two GC columns

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution
S = Indicates estimated value where valid five-point calibration was not performed prior to analyte detection in sample.

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	10/19/11
Project:	CTO WE63	Date Received:	10/20/11
Client Sample ID:	FT-SB411-0002	SDG No.:	C4270
Lab Sample ID:	C4270-18	Matrix:	SOIL
Analytical Method:	SW8082	% Moisture:	2 Decanted:
Sample Wt/Vol:	30.09 Units: g	Final Vol:	10000 uL
Soil Aliquot Vol:	uL	Test:	PCB Group1
Extraction Type:		Injection Volume	1
GPC Factor :	1.0 PH : N/A		

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
PC004797.D	1	10/20/11	10/24/11	PB58708

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
12674-11-2	Aroclor-1016	8.5	U	3.5	17	ug/Kg
11104-28-2	Aroclor-1221	8.5	U	3.5	17	ug/Kg
11141-16-5	Aroclor-1232	8.5	U	7.6	17	ug/Kg
53469-21-9	Aroclor-1242	8.5	U	3.5	17	ug/Kg
12672-29-6	Aroclor-1248	8.5	U	6.7	17	ug/Kg
11097-69-1	Aroclor-1254	8.5	U	1.5	17	ug/Kg
37324-23-5	Aroclor-1262	8.5	U	0	17	ug/Kg
11100-14-4	Aroclor-1268	8.5	U	0	17	ug/Kg
11096-82-5	Aroclor-1260	46		4.2	17	ug/Kg
SURROGATES						
877-09-8	Tetrachloro-m-xylene	17.7		10 - 166	88%	SPK: 20
2051-24-3	Decachlorobiphenyl	19.6		60 - 125	98%	SPK: 20

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range
P = Indicates >25% difference for detected concentrations between the two GC columns

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution
S = Indicates estimated value where valid five-point calibration was not performed prior to analyte detection in sample.

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Hit Summary Sheet
SW-846

SDG No.: C4270 **Order ID:** C4270

Client: Tetra Tech NUS, Inc. **Project ID:** CTO WE63

Sample ID	Client ID	Matrix	Parameter	Concentration	C	RDL	MDL	Units
Client ID :	**FT-SB411-0002**							
C4270-18	FT-SB411-0002	SOIL	Aroclor-1260	46.00		17	4.2	ug/Kg
			Total Concentration:	**46.00**				
Client ID :	**FT-SB413-0002**							
C4270-14	FT-SB413-0002	SOIL	Aroclor-1248	20.00		18	7.1	ug/Kg
			Total Concentration:	**20.00**				
Client ID :	**FT-SB413-0002RE**							
C4270-14RE	FT-SB413-0002RE	SOIL	Aroclor-1248	22.00		18	7.1	ug/Kg
			Total Concentration:	**22.00**				

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ANALYTICAL RESULTS SUMMARY

PROJECT NAME : CTO WE08

TETRA TECH NUS, INC.
661 Anderson Drive

Pittsburgh , Pennsylvania - 15220-2745
Phone No: 4129218361

ORDER ID : C1833
ATTENTION : David Brayack

ACCREDITED IN ACCORDANCE WITH nelac
LABORATORY ACCREDITATION BUREAU ACCREDITED ISO/IEC 17025
DoD ELAP

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Cover Page

Order ID : C1833

Project ID : CTO WE08

Client : Tetra Tech NUS, Inc.

Lab Sample Number	Client Sample Number
C1833-01	FT-TB01-20110408
C1833-02	FT-GW423-2125
C1833-03	FT-GW423-3135
C1833-04	FT-GW423-4145
C1833-05	FT-GW423-5155

I certify that the data package is in compliance with the terms and conditions of the contract,both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hard copy data package has been authorized by the laboratory manager or his designee, as verified by the following signature.

Signature : Mildred V Reyes

Mildred V. Reyes, QA/QC Supervisor
2011.05.03 15:20:27 -04'00'

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CASE NARRATIVE

Tetra Tech NUS, Inc.
Project Name: CTO WE08
Project # N/A
Chemtech Project # C1833
Test Name: VOCMS Group1

A. Number of Samples and Date of Receipt:
5 Water samples were received on 04/12/2011.

B. Parameters
According to the Chain of Custody document, the following analyses were requested: VOCMS Group1. This data package contains results for VOCMS Group1.

C. Analytical Techniques:
The analysis performed on instrument MSVOA_G were done using GC column RTX-VMS which is 20 meters, 0.18 mm id, 1.0 um df, Restek Cat. #49914. The Trap was supplied by OI Analytical, OI #10 Trap , OI Eclipse 4660 Concentrator.The analysis of VOCMS Group1 was based on method 8260B.

D. QA/ QC Samples:
The Holding Times were met for all analysis.
The Surrogate recoveries met the acceptable criteria.
The Internal Standards Areas met the acceptable requirements.
The Retention Times were acceptable for all samples.
The RPD recoveries met criteria.
The Blank Spike met requirements for all samples.
The Blank Spike Duplicate met requirements for all samples.
The Blank analysis did not indicate the presence of lab contamination.
The Initial Calibration met the requirements.
The Continuous Calibration met the requirements.
The Tuning criteria met requirements.

E. Additional Comments:

Please use %D calculated based on Avg RF and CCRF for all compounds using Average Response Factor when the %RSD value for a compound is <15% for the Initial Calibration curve and use %D calculated based on Amount added and Calculated amount for all compounds using Linear Regression when the %RSD value for a compound is > 15% for the Initial Calibration curve for SW-846 analysis.

F. Manual Integration Comments:
Please refer to the Manual integration Report included with the Run Logs for information on the manual integrations performed.

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I certify that the data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. The laboratory manager or his designee, as verified by the following signature has authorized release of the data contained in this hard copy data package.

Signature_____ Mildred V. Reyes, QA/QC Supervisor
2011.05.03 15:20:17 -04'00'

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	04/08/11
Project:	CTO WE08	Date Received:	04/12/11
Client Sample ID:	FT-GW423-2125	SDG No.:	C1833
Lab Sample ID:	C1833-02	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG034305.D	1		04/15/11	VG041411

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	0.5	U	0.2	1	ug/L
74-87-3	Chloromethane	0.5	U	0.2	1	ug/L
75-01-4	Vinyl Chloride	0.5	U	0.34	1	ug/L
74-83-9	Bromomethane	0.5	U	0.2	1	ug/L
75-00-3	Chloroethane	0.5	U	0.2	1	ug/L
75-69-4	Trichlorofluoromethane	0.5	U	0.35	1	ug/L
76-13-1	1,1,2-Trichlorotrifluoroethane	0.5	U	0.45	1	ug/L
75-35-4	1,1-Dichloroethene	0.5	U	0.47	1	ug/L
67-64-1	Acetone	2.5	U	0.5	5	ug/L
75-15-0	Carbon Disulfide	0.5	U	0.2	1	ug/L
1634-04-4	Methyl tert-butyl Ether	0.5	U	0.35	1	ug/L
79-20-9	Methyl Acetate	0.5	U	0.2	1	ug/L
75-09-2	Methylene Chloride	0.5	U	0.41	1	ug/L
156-60-5	trans-1,2-Dichloroethene	0.5	U	0.41	1	ug/L
75-34-3	1,1-Dichloroethane	0.5	U	0.36	1	ug/L
110-82-7	Cyclohexane	0.5	U	0.2	1	ug/L
78-93-3	2-Butanone	2.5	U	1.3	5	ug/L
56-23-5	Carbon Tetrachloride	0.5	U	0.2	1	ug/L
156-59-2	cis-1,2-Dichloroethene	0.5	U	0.35	1	ug/L
74-97-5	Bromochloromethane	0.5	U	0.2	1	ug/L
67-66-3	Chloroform	0.5	U	0.34	1	ug/L
71-55-6	1,1,1-Trichloroethane	0.5	U	0.4	1	ug/L
108-87-2	Methylcyclohexane	0.5	U	0.2	1	ug/L
71-43-2	Benzene	0.5	U	0.32	1	ug/L
107-06-2	1,2-Dichloroethane	0.5	U	0.48	1	ug/L
79-01-6	Trichloroethene	0.5	U	0.28	1	ug/L
78-87-5	1,2-Dichloropropane	0.5	U	0.46	1	ug/L
75-27-4	Bromodichloromethane	0.5	U	0.36	1	ug/L
108-10-1	4-Methyl-2-Pentanone	2.5	U	2.1	5	ug/L
108-88-3	Toluene	0.5	U	0.37	1	ug/L
10061-02-6	t-1,3-Dichloropropene	0.5	U	0.29	1	ug/L

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	04/08/11
Project:	CTO WE08	Date Received:	04/12/11
Client Sample ID:	FT-GW423-2125	SDG No.:	C1833
Lab Sample ID:	C1833-02	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG034305.D	1		04/15/11	VG041411

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
10061-01-5	cis-1,3-Dichloropropene	0.5	U	0.31	1	ug/L
79-00-5	1,1,2-Trichloroethane	0.5	U	0.38	1	ug/L
591-78-6	2-Hexanone	2.5	U	1.9	5	ug/L
124-48-1	Dibromochloromethane	0.5	U	0.2	1	ug/L
106-93-4	1,2-Dibromoethane	0.5	U	0.41	1	ug/L
127-18-4	Tetrachloroethene	0.5	U	0.27	1	ug/L
108-90-7	Chlorobenzene	0.5	U	0.49	1	ug/L
100-41-4	Ethyl Benzene	0.5	U	0.2	1	ug/L
179601-23-1	m/p-Xylenes	1	U	0.95	2	ug/L
95-47-6	o-Xylene	0.5	U	0.43	1	ug/L
100-42-5	Styrene	0.5	U	0.36	1	ug/L
75-25-2	Bromoform	0.5	U	0.47	1	ug/L
98-82-8	Isopropylbenzene	0.5	U	0.45	1	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	0.5	U	0.31	1	ug/L
541-73-1	1,3-Dichlorobenzene	0.5	U	0.43	1	ug/L
106-46-7	1,4-Dichlorobenzene	0.5	U	0.32	1	ug/L
95-50-1	1,2-Dichlorobenzene	0.5	U	0.45	1	ug/L
96-12-8	1,2-Dibromo-3-Chloropropane	0.5	U	0.46	1	ug/L
120-82-1	1,2,4-Trichlorobenzene	0.5	U	0.2	1	ug/L
87-61-6	1,2,3-Trichlorobenzene	0.5	U	0.2	1	ug/L
123-91-1	1,4-Dioxane	10	U	20	20	ug/L
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	51.1		70 - 120	102%	SPK: 50
1868-53-7	Dibromofluoromethane	51.2		85 - 115	102%	SPK: 50
2037-26-5	Toluene-d8	45.5		85 - 120	91%	SPK: 50
460-00-4	4-Bromofluorobenzene	51.9		75 - 120	104%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	379379	3.87			
540-36-3	1,4-Difluorobenzene	735756	4.67			
3114-55-4	Chlorobenzene-d5	630605	9.64			
3855-82-1	1,4-Dichlorobenzene-d4	235831	13.34			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	04/08/11
Project:	CTO WE08	Date Received:	04/12/11
Client Sample ID:	FT-GW423-3135	SDG No.:	C1833
Lab Sample ID:	C1833-03	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG034303.D	1		04/14/11	VG041411

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	0.5	U	0.2	1	ug/L
74-87-3	Chloromethane	0.5	U	0.2	1	ug/L
75-01-4	Vinyl Chloride	0.5	U	0.34	1	ug/L
74-83-9	Bromomethane	0.5	U	0.2	1	ug/L
75-00-3	Chloroethane	0.5	U	0.2	1	ug/L
75-69-4	Trichlorofluoromethane	0.5	U	0.35	1	ug/L
76-13-1	1,1,2-Trichlorotrifluoroethane	0.5	U	0.45	1	ug/L
75-35-4	1,1-Dichloroethene	0.5	U	0.47	1	ug/L
67-64-1	Acetone	2.5	U	0.5	5	ug/L
75-15-0	Carbon Disulfide	0.5	U	0.2	1	ug/L
1634-04-4	Methyl tert-butyl Ether	0.5	U	0.35	1	ug/L
79-20-9	Methyl Acetate	0.5	U	0.2	1	ug/L
75-09-2	Methylene Chloride	0.5	U	0.41	1	ug/L
156-60-5	trans-1,2-Dichloroethene	0.5	U	0.41	1	ug/L
75-34-3	1,1-Dichloroethane	0.5	U	0.36	1	ug/L
110-82-7	Cyclohexane	0.5	U	0.2	1	ug/L
78-93-3	2-Butanone	2.5	U	1.3	5	ug/L
56-23-5	Carbon Tetrachloride	0.5	U	0.2	1	ug/L
156-59-2	cis-1,2-Dichloroethene	0.5	U	0.35	1	ug/L
74-97-5	Bromochloromethane	0.5	U	0.2	1	ug/L
67-66-3	Chloroform	0.5	U	0.34	1	ug/L
71-55-6	1,1,1-Trichloroethane	0.5	U	0.4	1	ug/L
108-87-2	Methylcyclohexane	0.5	U	0.2	1	ug/L
71-43-2	Benzene	0.5	U	0.32	1	ug/L
107-06-2	1,2-Dichloroethane	0.5	U	0.48	1	ug/L
79-01-6	Trichloroethene	0.5	U	0.28	1	ug/L
78-87-5	1,2-Dichloropropane	0.5	U	0.46	1	ug/L
75-27-4	Bromodichloromethane	0.5	U	0.36	1	ug/L
108-10-1	4-Methyl-2-Pentanone	2.5	U	2.1	5	ug/L
108-88-3	Toluene	0.5	U	0.37	1	ug/L
10061-02-6	t-1,3-Dichloropropene	0.5	U	0.29	1	ug/L

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	04/08/11
Project:	CTO WE08	Date Received:	04/12/11
Client Sample ID:	FT-GW423-3135	SDG No.:	C1833
Lab Sample ID:	C1833-03	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG034303.D	1		04/14/11	VG041411

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
10061-01-5	cis-1,3-Dichloropropene	0.5	U	0.31	1	ug/L
79-00-5	1,1,2-Trichloroethane	0.5	U	0.38	1	ug/L
591-78-6	2-Hexanone	2.5	U	1.9	5	ug/L
124-48-1	Dibromochloromethane	0.5	U	0.2	1	ug/L
106-93-4	1,2-Dibromoethane	0.5	U	0.41	1	ug/L
127-18-4	Tetrachloroethene	0.5	U	0.27	1	ug/L
108-90-7	Chlorobenzene	0.5	U	0.49	1	ug/L
100-41-4	Ethyl Benzene	0.5	U	0.2	1	ug/L
179601-23-1	m/p-Xylenes	1	U	0.95	2	ug/L
95-47-6	o-Xylene	0.5	U	0.43	1	ug/L
100-42-5	Styrene	0.5	U	0.36	1	ug/L
75-25-2	Bromoform	0.5	U	0.47	1	ug/L
98-82-8	Isopropylbenzene	0.5	U	0.45	1	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	0.5	U	0.31	1	ug/L
541-73-1	1,3-Dichlorobenzene	0.5	U	0.43	1	ug/L
106-46-7	1,4-Dichlorobenzene	0.5	U	0.32	1	ug/L
95-50-1	1,2-Dichlorobenzene	0.5	U	0.45	1	ug/L
96-12-8	1,2-Dibromo-3-Chloropropane	0.5	U	0.46	1	ug/L
120-82-1	1,2,4-Trichlorobenzene	0.5	U	0.2	1	ug/L
87-61-6	1,2,3-Trichlorobenzene	0.5	U	0.2	1	ug/L
123-91-1	1,4-Dioxane	10	U	20	20	ug/L
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	49.4		70 - 120	99%	SPK: 50
1868-53-7	Dibromofluoromethane	50		85 - 115	100%	SPK: 50
2037-26-5	Toluene-d8	46.2		85 - 120	92%	SPK: 50
460-00-4	4-Bromofluorobenzene	48.2		75 - 120	96%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	385971	3.87			
540-36-3	1,4-Difluorobenzene	752058	4.66			
3114-55-4	Chlorobenzene-d5	630443	9.64			
3855-82-1	1,4-Dichlorobenzene-d4	231992	13.34			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	04/08/11
Project:	CTO WE08	Date Received:	04/12/11
Client Sample ID:	FT-GW423-4145	SDG No.:	C1833
Lab Sample ID:	C1833-04	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG034304.D	1		04/15/11	VG041411

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	0.5	U	0.2	1	ug/L
74-87-3	Chloromethane	0.5	U	0.2	1	ug/L
75-01-4	Vinyl Chloride	0.5	U	0.34	1	ug/L
74-83-9	Bromomethane	0.5	U	0.2	1	ug/L
75-00-3	Chloroethane	0.5	U	0.2	1	ug/L
75-69-4	Trichlorofluoromethane	0.5	U	0.35	1	ug/L
76-13-1	1,1,2-Trichlorotrifluoroethane	0.5	U	0.45	1	ug/L
75-35-4	1,1-Dichloroethene	0.5	U	0.47	1	ug/L
67-64-1	Acetone	2.5	U	0.5	5	ug/L
75-15-0	Carbon Disulfide	0.5	U	0.2	1	ug/L
1634-04-4	Methyl tert-butyl Ether	0.5	U	0.35	1	ug/L
79-20-9	Methyl Acetate	0.5	U	0.2	1	ug/L
75-09-2	Methylene Chloride	0.5	U	0.41	1	ug/L
156-60-5	trans-1,2-Dichloroethene	0.5	U	0.41	1	ug/L
75-34-3	1,1-Dichloroethane	0.5	U	0.36	1	ug/L
110-82-7	Cyclohexane	0.5	U	0.2	1	ug/L
78-93-3	2-Butanone	2.5	U	1.3	5	ug/L
56-23-5	Carbon Tetrachloride	0.5	U	0.2	1	ug/L
156-59-2	cis-1,2-Dichloroethene	0.5	U	0.35	1	ug/L
74-97-5	Bromochloromethane	0.5	U	0.2	1	ug/L
67-66-3	Chloroform	0.5	U	0.34	1	ug/L
71-55-6	1,1,1-Trichloroethane	0.5	U	0.4	1	ug/L
108-87-2	Methylcyclohexane	0.5	U	0.2	1	ug/L
71-43-2	Benzene	0.5	U	0.32	1	ug/L
107-06-2	1,2-Dichloroethane	0.5	U	0.48	1	ug/L
79-01-6	Trichloroethene	0.5	U	0.28	1	ug/L
78-87-5	1,2-Dichloropropane	0.5	U	0.46	1	ug/L
75-27-4	Bromodichloromethane	0.5	U	0.36	1	ug/L
108-10-1	4-Methyl-2-Pentanone	2.5	U	2.1	5	ug/L
108-88-3	Toluene	0.5	U	0.37	1	ug/L
10061-02-6	t-1,3-Dichloropropene	0.5	U	0.29	1	ug/L

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	04/08/11
Project:	CTO WE08	Date Received:	04/12/11
Client Sample ID:	FT-GW423-4145	SDG No.:	C1833
Lab Sample ID:	C1833-04	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG034304.D	1		04/15/11	VG041411

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
10061-01-5	cis-1,3-Dichloropropene	0.5	U	0.31	1	ug/L
79-00-5	1,1,2-Trichloroethane	0.5	U	0.38	1	ug/L
591-78-6	2-Hexanone	2.5	U	1.9	5	ug/L
124-48-1	Dibromochloromethane	0.5	U	0.2	1	ug/L
106-93-4	1,2-Dibromoethane	0.5	U	0.41	1	ug/L
127-18-4	Tetrachloroethene	0.5	U	0.27	1	ug/L
108-90-7	Chlorobenzene	0.5	U	0.49	1	ug/L
100-41-4	Ethyl Benzene	0.5	U	0.2	1	ug/L
179601-23-1	m/p-Xylenes	1	U	0.95	2	ug/L
95-47-6	o-Xylene	0.5	U	0.43	1	ug/L
100-42-5	Styrene	0.5	U	0.36	1	ug/L
75-25-2	Bromoform	0.5	U	0.47	1	ug/L
98-82-8	Isopropylbenzene	0.5	U	0.45	1	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	0.5	U	0.31	1	ug/L
541-73-1	1,3-Dichlorobenzene	0.5	U	0.43	1	ug/L
106-46-7	1,4-Dichlorobenzene	0.5	U	0.32	1	ug/L
95-50-1	1,2-Dichlorobenzene	0.5	U	0.45	1	ug/L
96-12-8	1,2-Dibromo-3-Chloropropane	0.5	U	0.46	1	ug/L
120-82-1	1,2,4-Trichlorobenzene	0.5	U	0.2	1	ug/L
87-61-6	1,2,3-Trichlorobenzene	0.5	U	0.2	1	ug/L
123-91-1	1,4-Dioxane	10	U	20	20	ug/L
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	49.8		70 - 120	100%	SPK: 50
1868-53-7	Dibromofluoromethane	50.9		85 - 115	102%	SPK: 50
2037-26-5	Toluene-d8	42.7		85 - 120	85%	SPK: 50
460-00-4	4-Bromofluorobenzene	49.9		75 - 120	100%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	399407	3.86			
540-36-3	1,4-Difluorobenzene	751483	4.66			
3114-55-4	Chlorobenzene-d5	672036	9.64			
3855-82-1	1,4-Dichlorobenzene-d4	246745	13.35			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	04/08/11
Project:	CTO WE08	Date Received:	04/12/11
Client Sample ID:	FT-GW423-5155	SDG No.:	C1833
Lab Sample ID:	C1833-05	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG034306.D	1		04/15/11	VG041411

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	0.5	U	0.2	1	ug/L
74-87-3	Chloromethane	0.5	U	0.2	1	ug/L
75-01-4	Vinyl Chloride	0.5	U	0.34	1	ug/L
74-83-9	Bromomethane	0.5	U	0.2	1	ug/L
75-00-3	Chloroethane	0.5	U	0.2	1	ug/L
75-69-4	Trichlorofluoromethane	0.5	U	0.35	1	ug/L
76-13-1	1,1,2-Trichlorotrifluoroethane	0.5	U	0.45	1	ug/L
75-35-4	1,1-Dichloroethene	0.5	U	0.47	1	ug/L
67-64-1	Acetone	2.7	J	0.5	5	ug/L
75-15-0	Carbon Disulfide	0.5	U	0.2	1	ug/L
1634-04-4	Methyl tert-butyl Ether	0.5	U	0.35	1	ug/L
79-20-9	Methyl Acetate	0.5	U	0.2	1	ug/L
75-09-2	Methylene Chloride	0.5	U	0.41	1	ug/L
156-60-5	trans-1,2-Dichloroethene	0.5	U	0.41	1	ug/L
75-34-3	1,1-Dichloroethane	0.5	U	0.36	1	ug/L
110-82-7	Cyclohexane	0.5	U	0.2	1	ug/L
78-93-3	2-Butanone	2.5	U	1.3	5	ug/L
56-23-5	Carbon Tetrachloride	0.5	U	0.2	1	ug/L
156-59-2	cis-1,2-Dichloroethene	0.5	U	0.35	1	ug/L
74-97-5	Bromochloromethane	0.5	U	0.2	1	ug/L
67-66-3	Chloroform	0.63	J	0.34	1	ug/L
71-55-6	1,1,1-Trichloroethane	0.5	U	0.4	1	ug/L
108-87-2	Methylcyclohexane	0.5	U	0.2	1	ug/L
71-43-2	Benzene	0.5	U	0.32	1	ug/L
107-06-2	1,2-Dichloroethane	0.5	U	0.48	1	ug/L
79-01-6	Trichloroethene	0.5	U	0.28	1	ug/L
78-87-5	1,2-Dichloropropane	0.5	U	0.46	1	ug/L
75-27-4	Bromodichloromethane	0.5	U	0.36	1	ug/L
108-10-1	4-Methyl-2-Pentanone	2.5	U	2.1	5	ug/L
108-88-3	Toluene	0.5	U	0.37	1	ug/L
10061-02-6	t-1,3-Dichloropropene	0.5	U	0.29	1	ug/L

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	04/08/11
Project:	CTO WE08	Date Received:	04/12/11
Client Sample ID:	FT-GW423-5155	SDG No.:	C1833
Lab Sample ID:	C1833-05	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG034306.D	1		04/15/11	VG041411

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
10061-01-5	cis-1,3-Dichloropropene	0.5	U	0.31	1	ug/L
79-00-5	1,1,2-Trichloroethane	0.5	U	0.38	1	ug/L
591-78-6	2-Hexanone	2.5	U	1.9	5	ug/L
124-48-1	Dibromochloromethane	0.5	U	0.2	1	ug/L
106-93-4	1,2-Dibromoethane	0.5	U	0.41	1	ug/L
127-18-4	Tetrachloroethene	0.5	U	0.27	1	ug/L
108-90-7	Chlorobenzene	0.5	U	0.49	1	ug/L
100-41-4	Ethyl Benzene	0.5	U	0.2	1	ug/L
179601-23-1	m/p-Xylenes	1	U	0.95	2	ug/L
95-47-6	o-Xylene	0.5	U	0.43	1	ug/L
100-42-5	Styrene	0.5	U	0.36	1	ug/L
75-25-2	Bromoform	0.5	U	0.47	1	ug/L
98-82-8	Isopropylbenzene	0.5	U	0.45	1	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	0.5	U	0.31	1	ug/L
541-73-1	1,3-Dichlorobenzene	0.5	U	0.43	1	ug/L
106-46-7	1,4-Dichlorobenzene	0.5	U	0.32	1	ug/L
95-50-1	1,2-Dichlorobenzene	0.5	U	0.45	1	ug/L
96-12-8	1,2-Dibromo-3-Chloropropane	0.5	U	0.46	1	ug/L
120-82-1	1,2,4-Trichlorobenzene	0.5	U	0.2	1	ug/L
87-61-6	1,2,3-Trichlorobenzene	0.5	U	0.2	1	ug/L
123-91-1	1,4-Dioxane	10	U	20	20	ug/L
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	52.7		70 - 120	105%	SPK: 50
1868-53-7	Dibromofluoromethane	53.4		85 - 115	107%	SPK: 50
2037-26-5	Toluene-d8	43.1		85 - 120	86%	SPK: 50
460-00-4	4-Bromofluorobenzene	50.9		75 - 120	102%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	360526	3.86			
540-36-3	1,4-Difluorobenzene	690363	4.66			
3114-55-4	Chlorobenzene-d5	594245	9.64			
3855-82-1	1,4-Dichlorobenzene-d4	223362	13.34			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	04/08/11
Project:	CTO WE08	Date Received:	04/12/11
Client Sample ID:	FT-TB01-20110408	SDG No.:	C1833
Lab Sample ID:	C1833-01	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG034301.D	1		04/14/11	VG041411

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	0.5	U	0.2	1	ug/L
74-87-3	Chloromethane	0.5	U	0.2	1	ug/L
75-01-4	Vinyl Chloride	0.5	U	0.34	1	ug/L
74-83-9	Bromomethane	0.5	U	0.2	1	ug/L
75-00-3	Chloroethane	0.5	U	0.2	1	ug/L
75-69-4	Trichlorofluoromethane	0.5	U	0.35	1	ug/L
76-13-1	1,1,2-Trichlorotrifluoroethane	0.5	U	0.45	1	ug/L
75-35-4	1,1-Dichloroethene	0.5	U	0.47	1	ug/L
67-64-1	Acetone	2.5	U	0.5	5	ug/L
75-15-0	Carbon Disulfide	0.5	U	0.2	1	ug/L
1634-04-4	Methyl tert-butyl Ether	0.5	U	0.35	1	ug/L
79-20-9	Methyl Acetate	0.5	U	0.2	1	ug/L
75-09-2	Methylene Chloride	0.5	U	0.41	1	ug/L
156-60-5	trans-1,2-Dichloroethene	0.5	U	0.41	1	ug/L
75-34-3	1,1-Dichloroethane	0.5	U	0.36	1	ug/L
110-82-7	Cyclohexane	0.5	U	0.2	1	ug/L
78-93-3	2-Butanone	2.5	U	1.3	5	ug/L
56-23-5	Carbon Tetrachloride	0.5	U	0.2	1	ug/L
156-59-2	cis-1,2-Dichloroethene	0.5	U	0.35	1	ug/L
74-97-5	Bromochloromethane	0.5	U	0.2	1	ug/L
67-66-3	Chloroform	0.5	U	0.34	1	ug/L
71-55-6	1,1,1-Trichloroethane	0.5	U	0.4	1	ug/L
108-87-2	Methylcyclohexane	0.5	U	0.2	1	ug/L
71-43-2	Benzene	0.5	U	0.32	1	ug/L
107-06-2	1,2-Dichloroethane	0.5	U	0.48	1	ug/L
79-01-6	Trichloroethene	0.5	U	0.28	1	ug/L
78-87-5	1,2-Dichloropropane	0.5	U	0.46	1	ug/L
75-27-4	Bromodichloromethane	0.5	U	0.36	1	ug/L
108-10-1	4-Methyl-2-Pentanone	2.5	U	2.1	5	ug/L
108-88-3	Toluene	0.5	U	0.37	1	ug/L
10061-02-6	t-1,3-Dichloropropene	0.5	U	0.29	1	ug/L

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	04/08/11
Project:	CTO WE08	Date Received:	04/12/11
Client Sample ID:	FT-TB01-20110408	SDG No.:	C1833
Lab Sample ID:	C1833-01	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG034301.D	1		04/14/11	VG041411

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
10061-01-5	cis-1,3-Dichloropropene	0.5	U	0.31	1	ug/L
79-00-5	1,1,2-Trichloroethane	0.5	U	0.38	1	ug/L
591-78-6	2-Hexanone	2.5	U	1.9	5	ug/L
124-48-1	Dibromochloromethane	0.5	U	0.2	1	ug/L
106-93-4	1,2-Dibromoethane	0.5	U	0.41	1	ug/L
127-18-4	Tetrachloroethene	0.5	U	0.27	1	ug/L
108-90-7	Chlorobenzene	0.5	U	0.49	1	ug/L
100-41-4	Ethyl Benzene	0.5	U	0.2	1	ug/L
179601-23-1	m/p-Xylenes	1	U	0.95	2	ug/L
95-47-6	o-Xylene	0.5	U	0.43	1	ug/L
100-42-5	Styrene	0.5	U	0.36	1	ug/L
75-25-2	Bromoform	0.5	U	0.47	1	ug/L
98-82-8	Isopropylbenzene	0.5	U	0.45	1	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	0.5	U	0.31	1	ug/L
541-73-1	1,3-Dichlorobenzene	0.5	U	0.43	1	ug/L
106-46-7	1,4-Dichlorobenzene	0.5	U	0.32	1	ug/L
95-50-1	1,2-Dichlorobenzene	0.5	U	0.45	1	ug/L
96-12-8	1,2-Dibromo-3-Chloropropane	0.5	U	0.46	1	ug/L
120-82-1	1,2,4-Trichlorobenzene	0.5	U	0.2	1	ug/L
87-61-6	1,2,3-Trichlorobenzene	0.5	U	0.2	1	ug/L
123-91-1	1,4-Dioxane	10	U	20	20	ug/L
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	50.3		70 - 120	101%	SPK: 50
1868-53-7	Dibromofluoromethane	50.6		85 - 115	101%	SPK: 50
2037-26-5	Toluene-d8	47.7		85 - 120	95%	SPK: 50
460-00-4	4-Bromofluorobenzene	50.5		75 - 120	101%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	400298	3.87			
540-36-3	1,4-Difluorobenzene	792111	4.67			
3114-55-4	Chlorobenzene-d5	673249	9.64			
3855-82-1	1,4-Dichlorobenzene-d4	253255	13.34			

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ANALYTICAL RESULTS SUMMARY

PROJECT NAME : CTO WE08

TETRA TECH NUS, INC.
661 Anderson Drive

Pittsburgh , Pennsylvania - 15220-2745
Phone No: 4129218361

ORDER ID : C2735
ATTENTION : David Brayack

ACCREDITED IN ACCORDANCE WITH nelac

DoD ELAP

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Cover Page

Order ID : C2735

Project ID : CTO WE08

Client : Tetra Tech NUS, Inc.

Lab Sample Number	Client Sample Number
C2735-01	FT-TB01-20110613
C2735-02	FT-GW427-2125
C2735-03	FT-GW427-3135
C2735-04	FT-GW427-4145
C2735-05	FT-RB01-20110613
C2735-06	FT-GW427-5155
C2735-07	FT-GW427-6165
C2735-08	FT-GW426-2125
C2735-09	FT-GW426-3135
C2735-10	FT-GW426-4145
C2735-11	FT-DUP01-20110613
C2735-12	FT-GW426-5155
C2735-13	C2735-12MS
C2735-14	C2735-12MSD
C2735-15	FT-GW426-6165
C2735-16	FT-SB01-20110614
C2735-17	FT-GW425-2125
C2735-18	FT-GW425-3135
C2735-19	FT-GW425-4145
C2735-20	FT-GW425-5155
C2735-21	FT-GW425-6165
C2735-22	FT-GW424-2125

I certify that the data package is in compliance with the terms and conditions of the contract,both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hard copy data package has been authorized by the laboratory manager or his designee, as verified by the following signature.

Signature : Mildred V Reyes

Mildred V. Reyes, QA/QC Supervisor
2011.07.12 13:00:21 -04'00'

NYDOH CERTIFICATION NO - 11376

NJDEP CERTIFICATION NO - 20012

I Mildred Vleys, as the designated Quality Assurance ~~Officer~~ Supervisor, hereby attest that all electronic deliverables have been thoroughly reviewed and are in agreement with the associated hardcopy data. The enclosed electronic files have been reviewed for accuracy (including significant figures), completeness and format. The laboratory will be responsible for any labor time necessary to correct enclosed electronic deliverables that have been found to be in error. I can be reached at (908) 789-8900 if there are any questions or problems with the enclosed electronic deliverables.

Signature: Mildred Vleys Title: QA/QC Supervisor Date: 7/12/11

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	06/15/11
Project:	CTO WE08	Date Received:	06/17/11
Client Sample ID:	FT-GW424-2125	SDG No.:	C2735
Lab Sample ID:	C2735-22	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG035675.D	1		06/20/11	VG062011

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	0.5	U	0.2	1	ug/L
74-87-3	Chloromethane	0.5	U	0.2	1	ug/L
75-01-4	Vinyl Chloride	0.5	U	0.34	1	ug/L
74-83-9	Bromomethane	0.5	U	0.2	1	ug/L
75-00-3	Chloroethane	0.5	U	0.2	1	ug/L
75-69-4	Trichlorofluoromethane	0.5	U	0.35	1	ug/L
76-13-1	1,1,2-Trichlorotrifluoroethane	0.5	U	0.45	1	ug/L
75-35-4	1,1-Dichloroethene	0.5	U	0.47	1	ug/L
67-64-1	Acetone	2.5	U	0.5	5	ug/L
75-15-0	Carbon Disulfide	0.5	U	0.2	1	ug/L
1634-04-4	Methyl tert-butyl Ether	0.5	U	0.35	1	ug/L
79-20-9	Methyl Acetate	0.5	U	0.2	1	ug/L
75-09-2	Methylene Chloride	0.5	U	0.41	1	ug/L
156-60-5	trans-1,2-Dichloroethene	0.5	U	0.41	1	ug/L
75-34-3	1,1-Dichloroethane	0.5	U	0.36	1	ug/L
110-82-7	Cyclohexane	0.5	U	0.2	1	ug/L
78-93-3	2-Butanone	2.5	U	1.3	5	ug/L
56-23-5	Carbon Tetrachloride	0.5	U	0.2	1	ug/L
156-59-2	cis-1,2-Dichloroethene	0.5	U	0.35	1	ug/L
74-97-5	Bromochloromethane	0.5	U	0.2	1	ug/L
67-66-3	Chloroform	0.5	U	0.34	1	ug/L
71-55-6	1,1,1-Trichloroethane	0.5	U	0.4	1	ug/L
108-87-2	Methylcyclohexane	0.5	U	0.2	1	ug/L
71-43-2	Benzene	0.5	U	0.32	1	ug/L
107-06-2	1,2-Dichloroethane	0.5	U	0.48	1	ug/L
79-01-6	Trichloroethene	0.5	U	0.28	1	ug/L
78-87-5	1,2-Dichloropropane	0.5	U	0.46	1	ug/L
75-27-4	Bromodichloromethane	0.5	U	0.36	1	ug/L
108-10-1	4-Methyl-2-Pentanone	2.5	U	2.1	5	ug/L
108-88-3	Toluene	0.5	U	0.37	1	ug/L
10061-02-6	t-1,3-Dichloropropene	0.5	U	0.29	1	ug/L

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	06/15/11
Project:	CTO WE08	Date Received:	06/17/11
Client Sample ID:	FT-GW424-2125	SDG No.:	C2735
Lab Sample ID:	C2735-22	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG035675.D	1		06/20/11	VG062011

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
10061-01-5	cis-1,3-Dichloropropene	0.5	U	0.31	1	ug/L
79-00-5	1,1,2-Trichloroethane	0.5	U	0.38	1	ug/L
591-78-6	2-Hexanone	2.5	U	1.9	5	ug/L
124-48-1	Dibromochloromethane	0.5	U	0.2	1	ug/L
106-93-4	1,2-Dibromoethane	0.5	U	0.41	1	ug/L
127-18-4	Tetrachloroethene	0.5	U	0.27	1	ug/L
108-90-7	Chlorobenzene	0.5	U	0.49	1	ug/L
100-41-4	Ethyl Benzene	0.5	U	0.2	1	ug/L
179601-23-1	m/p-Xylenes	1	U	0.95	2	ug/L
95-47-6	o-Xylene	0.5	U	0.43	1	ug/L
100-42-5	Styrene	0.5	U	0.36	1	ug/L
75-25-2	Bromoform	0.5	U	0.47	1	ug/L
98-82-8	Isopropylbenzene	0.5	U	0.45	1	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	0.5	U	0.31	1	ug/L
541-73-1	1,3-Dichlorobenzene	0.5	U	0.43	1	ug/L
106-46-7	1,4-Dichlorobenzene	0.5	U	0.32	1	ug/L
95-50-1	1,2-Dichlorobenzene	0.5	U	0.45	1	ug/L
96-12-8	1,2-Dibromo-3-Chloropropane	0.5	U	0.46	1	ug/L
120-82-1	1,2,4-Trichlorobenzene	0.5	U	0.2	1	ug/L
87-61-6	1,2,3-Trichlorobenzene	0.5	U	0.2	1	ug/L
123-91-1	1,4-Dioxane	10	U	20	20	ug/L
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	49.5		70 - 120	99%	SPK: 50
1868-53-7	Dibromofluoromethane	49.7		85 - 115	99%	SPK: 50
2037-26-5	Toluene-d8	46.6		85 - 120	93%	SPK: 50
460-00-4	4-Bromofluorobenzene	43.8		75 - 120	88%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	673668	3.92			
540-36-3	1,4-Difluorobenzene	1162120	4.75			
3114-55-4	Chlorobenzene-d5	799922	9.71			
3855-82-1	1,4-Dichlorobenzene-d4	328319	13.41			
TENTATIVE IDENTIFIED COMPOUNDS						

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	06/15/11
Project:	CTO WE08	Date Received:	06/17/11
Client Sample ID:	FT-GW424-2125	SDG No.:	C2735
Lab Sample ID:	C2735-22	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG035675.D	1		06/20/11	VG062011

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
74-88-4	Methyl Iodide	0.62	J		1.51	ug/L

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	06/14/11
Project:	CTO WE08	Date Received:	06/17/11
Client Sample ID:	FT-GW425-2125	SDG No.:	C2735
Lab Sample ID:	C2735-17	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG035658.D	1		06/20/11	vg061911

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	0.5	U	0.2	1	ug/L
74-87-3	Chloromethane	0.77	J	0.2	1	ug/L
75-01-4	Vinyl Chloride	0.5	U	0.34	1	ug/L
74-83-9	Bromomethane	0.5	U	0.2	1	ug/L
75-00-3	Chloroethane	0.51	J	0.2	1	ug/L
75-69-4	Trichlorofluoromethane	0.5	U	0.35	1	ug/L
76-13-1	1,1,2-Trichlorotrifluoroethane	0.5	U	0.45	1	ug/L
75-35-4	1,1-Dichloroethene	0.5	U	0.47	1	ug/L
67-64-1	Acetone	2.5	U	0.5	5	ug/L
75-15-0	Carbon Disulfide	0.5	U	0.2	1	ug/L
1634-04-4	Methyl tert-butyl Ether	0.5	U	0.35	1	ug/L
79-20-9	Methyl Acetate	0.5	U	0.2	1	ug/L
75-09-2	Methylene Chloride	0.5	U	0.41	1	ug/L
156-60-5	trans-1,2-Dichloroethene	0.5	U	0.41	1	ug/L
75-34-3	1,1-Dichloroethane	0.5	U	0.36	1	ug/L
110-82-7	Cyclohexane	0.5	U	0.2	1	ug/L
78-93-3	2-Butanone	2.5	U	1.3	5	ug/L
56-23-5	Carbon Tetrachloride	0.5	U	0.2	1	ug/L
156-59-2	cis-1,2-Dichloroethene	0.5	U	0.35	1	ug/L
74-97-5	Bromochloromethane	0.5	U	0.2	1	ug/L
67-66-3	Chloroform	0.5	U	0.34	1	ug/L
71-55-6	1,1,1-Trichloroethane	0.5	U	0.4	1	ug/L
108-87-2	Methylcyclohexane	0.5	U	0.2	1	ug/L
71-43-2	Benzene	0.5	U	0.32	1	ug/L
107-06-2	1,2-Dichloroethane	0.5	U	0.48	1	ug/L
79-01-6	Trichloroethene	0.5	U	0.28	1	ug/L
78-87-5	1,2-Dichloropropane	0.5	U	0.46	1	ug/L
75-27-4	Bromodichloromethane	0.5	U	0.36	1	ug/L
108-10-1	4-Methyl-2-Pentanone	2.5	U	2.1	5	ug/L
108-88-3	Toluene	0.5	U	0.37	1	ug/L
10061-02-6	t-1,3-Dichloropropene	0.5	U	0.29	1	ug/L

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	06/14/11
Project:	CTO WE08	Date Received:	06/17/11
Client Sample ID:	FT-GW425-2125	SDG No.:	C2735
Lab Sample ID:	C2735-17	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG035658.D	1		06/20/11	vg061911

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
10061-01-5	cis-1,3-Dichloropropene	0.5	U	0.31	1	ug/L
79-00-5	1,1,2-Trichloroethane	0.5	U	0.38	1	ug/L
591-78-6	2-Hexanone	2.5	U	1.9	5	ug/L
124-48-1	Dibromochloromethane	0.5	U	0.2	1	ug/L
106-93-4	1,2-Dibromoethane	0.5	U	0.41	1	ug/L
127-18-4	Tetrachloroethene	0.5	U	0.27	1	ug/L
108-90-7	Chlorobenzene	0.5	U	0.49	1	ug/L
100-41-4	Ethyl Benzene	0.5	U	0.2	1	ug/L
179601-23-1	m/p-Xylenes	1	U	0.95	2	ug/L
95-47-6	o-Xylene	0.5	U	0.43	1	ug/L
100-42-5	Styrene	0.5	U	0.36	1	ug/L
75-25-2	Bromoform	0.5	U	0.47	1	ug/L
98-82-8	Isopropylbenzene	0.5	U	0.45	1	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	0.5	U	0.31	1	ug/L
541-73-1	1,3-Dichlorobenzene	0.5	U	0.43	1	ug/L
106-46-7	1,4-Dichlorobenzene	0.5	U	0.32	1	ug/L
95-50-1	1,2-Dichlorobenzene	0.5	U	0.45	1	ug/L
96-12-8	1,2-Dibromo-3-Chloropropane	0.5	U	0.46	1	ug/L
120-82-1	1,2,4-Trichlorobenzene	0.5	U	0.2	1	ug/L
87-61-6	1,2,3-Trichlorobenzene	0.5	U	0.2	1	ug/L
123-91-1	1,4-Dioxane	10	U	20	20	ug/L
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	52.5		70 - 120	105%	SPK: 50
1868-53-7	Dibromofluoromethane	52.5		85 - 115	105%	SPK: 50
2037-26-5	Toluene-d8	44.2		85 - 120	88%	SPK: 50
460-00-4	4-Bromofluorobenzene	44.9		75 - 120	90%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	634382	3.93			
540-36-3	1,4-Difluorobenzene	1108700	4.74			
3114-55-4	Chlorobenzene-d5	774098	9.7			
3855-82-1	1,4-Dichlorobenzene-d4	324174	13.4			
TENTATIVE IDENTIFIED COMPOUNDS						

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	06/14/11
Project:	CTO WE08	Date Received:	06/17/11
Client Sample ID:	FT-GW425-2125	SDG No.:	C2735
Lab Sample ID:	C2735-17	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG035658.D	1		06/20/11	vg061911

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
74-88-4	Methyl Iodide	1.6	J		1.5	ug/L
91-20-3	Naphthalene	0.72	J		16.95	ug/L

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	06/14/11
Project:	CTO WE08	Date Received:	06/17/11
Client Sample ID:	FT-GW425-3135	SDG No.:	C2735
Lab Sample ID:	C2735-18	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG035659.D	1		06/20/11	vg061911

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	0.5	U	0.2	1	ug/L
74-87-3	Chloromethane	0.61	J	0.2	1	ug/L
75-01-4	Vinyl Chloride	0.5	U	0.34	1	ug/L
74-83-9	Bromomethane	0.5	U	0.2	1	ug/L
75-00-3	Chloroethane	0.5	U	0.2	1	ug/L
75-69-4	Trichlorofluoromethane	0.5	U	0.35	1	ug/L
76-13-1	1,1,2-Trichlorotrifluoroethane	0.5	U	0.45	1	ug/L
75-35-4	1,1-Dichloroethene	0.5	U	0.47	1	ug/L
67-64-1	Acetone	2.5	U	0.5	5	ug/L
75-15-0	Carbon Disulfide	0.5	U	0.2	1	ug/L
1634-04-4	Methyl tert-butyl Ether	0.5	U	0.35	1	ug/L
79-20-9	Methyl Acetate	0.5	U	0.2	1	ug/L
75-09-2	Methylene Chloride	0.5	U	0.41	1	ug/L
156-60-5	trans-1,2-Dichloroethene	0.5	U	0.41	1	ug/L
75-34-3	1,1-Dichloroethane	0.9	J	0.36	1	ug/L
110-82-7	Cyclohexane	0.5	U	0.2	1	ug/L
78-93-3	2-Butanone	2.5	U	1.3	5	ug/L
56-23-5	Carbon Tetrachloride	0.5	U	0.2	1	ug/L
156-59-2	cis-1,2-Dichloroethene	0.5	U	0.35	1	ug/L
74-97-5	Bromochloromethane	0.5	U	0.2	1	ug/L
67-66-3	Chloroform	0.5	U	0.34	1	ug/L
71-55-6	1,1,1-Trichloroethane	0.5	U	0.4	1	ug/L
108-87-2	Methylcyclohexane	0.5	U	0.2	1	ug/L
71-43-2	Benzene	0.5	U	0.32	1	ug/L
107-06-2	1,2-Dichloroethane	0.5	U	0.48	1	ug/L
79-01-6	Trichloroethene	1.3		0.28	1	ug/L
78-87-5	1,2-Dichloropropane	0.5	U	0.46	1	ug/L
75-27-4	Bromodichloromethane	0.5	U	0.36	1	ug/L
108-10-1	4-Methyl-2-Pentanone	2.5	U	2.1	5	ug/L
108-88-3	Toluene	0.5	U	0.37	1	ug/L
10061-02-6	t-1,3-Dichloropropene	0.5	U	0.29	1	ug/L

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	06/14/11
Project:	CTO WE08	Date Received:	06/17/11
Client Sample ID:	FT-GW425-3135	SDG No.:	C2735
Lab Sample ID:	C2735-18	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG035659.D	1		06/20/11	vg061911

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
10061-01-5	cis-1,3-Dichloropropene	0.5	U	0.31	1	ug/L
79-00-5	1,1,2-Trichloroethane	0.5	U	0.38	1	ug/L
591-78-6	2-Hexanone	2.5	U	1.9	5	ug/L
124-48-1	Dibromochloromethane	0.5	U	0.2	1	ug/L
106-93-4	1,2-Dibromoethane	0.5	U	0.41	1	ug/L
127-18-4	Tetrachloroethene	0.5	U	0.27	1	ug/L
108-90-7	Chlorobenzene	0.5	U	0.49	1	ug/L
100-41-4	Ethyl Benzene	0.72	J	0.2	1	ug/L
179601-23-1	m/p-Xylenes	1.4	J	0.95	2	ug/L
95-47-6	o-Xylene	2.7		0.43	1	ug/L
100-42-5	Styrene	0.5	U	0.36	1	ug/L
75-25-2	Bromoform	0.5	U	0.47	1	ug/L
98-82-8	Isopropylbenzene	0.5	U	0.45	1	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	0.5	U	0.31	1	ug/L
541-73-1	1,3-Dichlorobenzene	0.5	U	0.43	1	ug/L
106-46-7	1,4-Dichlorobenzene	0.5	U	0.32	1	ug/L
95-50-1	1,2-Dichlorobenzene	0.5	U	0.45	1	ug/L
96-12-8	1,2-Dibromo-3-Chloropropane	0.5	U	0.46	1	ug/L
120-82-1	1,2,4-Trichlorobenzene	0.5	U	0.2	1	ug/L
87-61-6	1,2,3-Trichlorobenzene	0.5	U	0.2	1	ug/L
123-91-1	1,4-Dioxane	10	U	20	20	ug/L
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	51.3		70 - 120	103%	SPK: 50
1868-53-7	Dibromofluoromethane	51.7		85 - 115	103%	SPK: 50
2037-26-5	Toluene-d8	44.9		85 - 120	90%	SPK: 50
460-00-4	4-Bromofluorobenzene	44.9		75 - 120	90%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	639727	3.93			
540-36-3	1,4-Difluorobenzene	1115950	4.74			
3114-55-4	Chlorobenzene-d5	778129	9.7			
3855-82-1	1,4-Dichlorobenzene-d4	333388	13.41			
TENTATIVE IDENTIFIED COMPOUNDS						

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	06/14/11
Project:	CTO WE08	Date Received:	06/17/11
Client Sample ID:	FT-GW425-3135	SDG No.:	C2735
Lab Sample ID:	C2735-18	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG035659.D	1		06/20/11	vg061911

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
74-88-4	Methyl Iodide	5.1	J		1.5	ug/L
95-63-6	1,2,4-Trimethylbenzene	2.8	J		12.87	ug/L
91-20-3	Naphthalene	5.2	J		16.95	ug/L

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	06/14/11
Project:	CTO WE08	Date Received:	06/17/11
Client Sample ID:	FT-GW425-4145	SDG No.:	C2735
Lab Sample ID:	C2735-19	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG035709.D	1		06/21/11	VG062111

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	0.5	U	0.2	1	ug/L
74-87-3	Chloromethane	0.5	U	0.2	1	ug/L
75-01-4	Vinyl Chloride	0.5	U	0.34	1	ug/L
74-83-9	Bromomethane	0.5	U	0.2	1	ug/L
75-00-3	Chloroethane	0.5	U	0.2	1	ug/L
75-69-4	Trichlorofluoromethane	0.5	U	0.35	1	ug/L
76-13-1	1,1,2-Trichlorotrifluoroethane	0.5	U	0.45	1	ug/L
75-35-4	1,1-Dichloroethene	0.5	U	0.47	1	ug/L
67-64-1	Acetone	2.5	U	0.5	5	ug/L
75-15-0	Carbon Disulfide	0.5	U	0.2	1	ug/L
1634-04-4	Methyl tert-butyl Ether	0.5	U	0.35	1	ug/L
79-20-9	Methyl Acetate	0.5	U	0.2	1	ug/L
75-09-2	Methylene Chloride	0.5	U	0.41	1	ug/L
156-60-5	trans-1,2-Dichloroethene	0.5	U	0.41	1	ug/L
75-34-3	1,1-Dichloroethane	0.5	U	0.36	1	ug/L
110-82-7	Cyclohexane	0.5	U	0.2	1	ug/L
78-93-3	2-Butanone	2.5	U	1.3	5	ug/L
56-23-5	Carbon Tetrachloride	0.5	U	0.2	1	ug/L
156-59-2	cis-1,2-Dichloroethene	0.5	U	0.35	1	ug/L
74-97-5	Bromochloromethane	0.5	U	0.2	1	ug/L
67-66-3	Chloroform	0.5	U	0.34	1	ug/L
71-55-6	1,1,1-Trichloroethane	0.5	U	0.4	1	ug/L
108-87-2	Methylcyclohexane	0.5	U	0.2	1	ug/L
71-43-2	Benzene	0.5	U	0.32	1	ug/L
107-06-2	1,2-Dichloroethane	0.5	U	0.48	1	ug/L
79-01-6	Trichloroethene	0.5	U	0.28	1	ug/L
78-87-5	1,2-Dichloropropane	0.5	U	0.46	1	ug/L
75-27-4	Bromodichloromethane	0.5	U	0.36	1	ug/L
108-10-1	4-Methyl-2-Pentanone	2.5	U	2.1	5	ug/L
108-88-3	Toluene	0.5	U	0.37	1	ug/L
10061-02-6	t-1,3-Dichloropropene	0.5	U	0.29	1	ug/L

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	06/14/11
Project:	CTO WE08	Date Received:	06/17/11
Client Sample ID:	FT-GW425-4145	SDG No.:	C2735
Lab Sample ID:	C2735-19	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG035709.D	1		06/21/11	VG062111

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
10061-01-5	cis-1,3-Dichloropropene	0.5	U	0.31	1	ug/L
79-00-5	1,1,2-Trichloroethane	0.5	U	0.38	1	ug/L
591-78-6	2-Hexanone	2.5	U	1.9	5	ug/L
124-48-1	Dibromochloromethane	0.5	U	0.2	1	ug/L
106-93-4	1,2-Dibromoethane	0.5	U	0.41	1	ug/L
127-18-4	Tetrachloroethene	0.5	U	0.27	1	ug/L
108-90-7	Chlorobenzene	0.5	U	0.49	1	ug/L
100-41-4	Ethyl Benzene	0.5	U	0.2	1	ug/L
179601-23-1	m/p-Xylenes	1	U	0.95	2	ug/L
95-47-6	o-Xylene	0.5	U	0.43	1	ug/L
100-42-5	Styrene	0.5	U	0.36	1	ug/L
75-25-2	Bromoform	2.6		0.47	1	ug/L
98-82-8	Isopropylbenzene	0.5	U	0.45	1	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	0.5	U	0.31	1	ug/L
541-73-1	1,3-Dichlorobenzene	0.5	U	0.43	1	ug/L
106-46-7	1,4-Dichlorobenzene	0.5	U	0.32	1	ug/L
95-50-1	1,2-Dichlorobenzene	0.5	U	0.45	1	ug/L
96-12-8	1,2-Dibromo-3-Chloropropane	0.5	U	0.46	1	ug/L
120-82-1	1,2,4-Trichlorobenzene	0.5	U	0.2	1	ug/L
87-61-6	1,2,3-Trichlorobenzene	0.5	U	0.2	1	ug/L
123-91-1	1,4-Dioxane	10	U	20	20	ug/L
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	50.1		70 - 120	100%	SPK: 50
1868-53-7	Dibromofluoromethane	47.7		85 - 115	95%	SPK: 50
2037-26-5	Toluene-d8	43.7		85 - 120	87%	SPK: 50
460-00-4	4-Bromofluorobenzene	43.2		75 - 120	86%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	671087	3.94			
540-36-3	1,4-Difluorobenzene	1205470	4.76			
3114-55-4	Chlorobenzene-d5	825920	9.71			
3855-82-1	1,4-Dichlorobenzene-d4	325663	13.41			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	06/14/11
Project:	CTO WE08	Date Received:	06/17/11
Client Sample ID:	FT-GW425-5155	SDG No.:	C2735
Lab Sample ID:	C2735-20	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG035673.D	1		06/20/11	VG062011

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	0.5	U	0.2	1	ug/L
74-87-3	Chloromethane	0.5	U	0.2	1	ug/L
75-01-4	Vinyl Chloride	0.5	U	0.34	1	ug/L
74-83-9	Bromomethane	0.5	U	0.2	1	ug/L
75-00-3	Chloroethane	0.5	U	0.2	1	ug/L
75-69-4	Trichlorofluoromethane	0.5	U	0.35	1	ug/L
76-13-1	1,1,2-Trichlorotrifluoroethane	0.5	U	0.45	1	ug/L
75-35-4	1,1-Dichloroethene	0.5	U	0.47	1	ug/L
67-64-1	Acetone	2.5	U	0.5	5	ug/L
75-15-0	Carbon Disulfide	0.5	U	0.2	1	ug/L
1634-04-4	Methyl tert-butyl Ether	0.5	U	0.35	1	ug/L
79-20-9	Methyl Acetate	0.5	U	0.2	1	ug/L
75-09-2	Methylene Chloride	0.5	U	0.41	1	ug/L
156-60-5	trans-1,2-Dichloroethene	0.5	U	0.41	1	ug/L
75-34-3	1,1-Dichloroethane	0.5	U	0.36	1	ug/L
110-82-7	Cyclohexane	0.5	U	0.2	1	ug/L
78-93-3	2-Butanone	2.5	U	1.3	5	ug/L
56-23-5	Carbon Tetrachloride	0.5	U	0.2	1	ug/L
156-59-2	cis-1,2-Dichloroethene	0.5	U	0.35	1	ug/L
74-97-5	Bromochloromethane	0.5	U	0.2	1	ug/L
67-66-3	Chloroform	1.2		0.34	1	ug/L
71-55-6	1,1,1-Trichloroethane	0.5	U	0.4	1	ug/L
108-87-2	Methylcyclohexane	0.5	U	0.2	1	ug/L
71-43-2	Benzene	0.5	U	0.32	1	ug/L
107-06-2	1,2-Dichloroethane	0.5	U	0.48	1	ug/L
79-01-6	Trichloroethene	0.5	U	0.28	1	ug/L
78-87-5	1,2-Dichloropropane	0.5	U	0.46	1	ug/L
75-27-4	Bromodichloromethane	0.5	U	0.36	1	ug/L
108-10-1	4-Methyl-2-Pentanone	2.5	U	2.1	5	ug/L
108-88-3	Toluene	0.5	U	0.37	1	ug/L
10061-02-6	t-1,3-Dichloropropene	0.5	U	0.29	1	ug/L

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	06/14/11
Project:	CTO WE08	Date Received:	06/17/11
Client Sample ID:	FT-GW425-5155	SDG No.:	C2735
Lab Sample ID:	C2735-20	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG035673.D	1		06/20/11	VG062011

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
10061-01-5	cis-1,3-Dichloropropene	0.5	U	0.31	1	ug/L
79-00-5	1,1,2-Trichloroethane	0.5	U	0.38	1	ug/L
591-78-6	2-Hexanone	2.5	U	1.9	5	ug/L
124-48-1	Dibromochloromethane	0.5	U	0.2	1	ug/L
106-93-4	1,2-Dibromoethane	0.5	U	0.41	1	ug/L
127-18-4	Tetrachloroethene	0.5	U	0.27	1	ug/L
108-90-7	Chlorobenzene	0.5	U	0.49	1	ug/L
100-41-4	Ethyl Benzene	0.5	U	0.2	1	ug/L
179601-23-1	m/p-Xylenes	1	U	0.95	2	ug/L
95-47-6	o-Xylene	0.5	U	0.43	1	ug/L
100-42-5	Styrene	0.5	U	0.36	1	ug/L
75-25-2	Bromoform	0.5	U	0.47	1	ug/L
98-82-8	Isopropylbenzene	0.5	U	0.45	1	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	0.5	U	0.31	1	ug/L
541-73-1	1,3-Dichlorobenzene	0.5	U	0.43	1	ug/L
106-46-7	1,4-Dichlorobenzene	0.5	U	0.32	1	ug/L
95-50-1	1,2-Dichlorobenzene	0.5	U	0.45	1	ug/L
96-12-8	1,2-Dibromo-3-Chloropropane	0.5	U	0.46	1	ug/L
120-82-1	1,2,4-Trichlorobenzene	0.5	U	0.2	1	ug/L
87-61-6	1,2,3-Trichlorobenzene	0.5	U	0.2	1	ug/L
123-91-1	1,4-Dioxane	10	U	20	20	ug/L
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	51.1		70 - 120	102%	SPK: 50
1868-53-7	Dibromofluoromethane	53.8		85 - 115	108%	SPK: 50
2037-26-5	Toluene-d8	42.7		85 - 120	85%	SPK: 50
460-00-4	4-Bromofluorobenzene	45.2		75 - 120	90%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	676844	3.93			
540-36-3	1,4-Difluorobenzene	1123760	4.75			
3114-55-4	Chlorobenzene-d5	798347	9.71			
3855-82-1	1,4-Dichlorobenzene-d4	325217	13.4			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	06/14/11
Project:	CTO WE08	Date Received:	06/17/11
Client Sample ID:	FT-GW425-6165	SDG No.:	C2735
Lab Sample ID:	C2735-21	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG035674.D	1		06/20/11	VG062011

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	0.5	U	0.2	1	ug/L
74-87-3	Chloromethane	0.5	U	0.2	1	ug/L
75-01-4	Vinyl Chloride	0.5	U	0.34	1	ug/L
74-83-9	Bromomethane	0.5	U	0.2	1	ug/L
75-00-3	Chloroethane	0.5	U	0.2	1	ug/L
75-69-4	Trichlorofluoromethane	0.5	U	0.35	1	ug/L
76-13-1	1,1,2-Trichlorotrifluoroethane	0.5	U	0.45	1	ug/L
75-35-4	1,1-Dichloroethene	0.5	U	0.47	1	ug/L
67-64-1	Acetone	2.5	U	0.5	5	ug/L
75-15-0	Carbon Disulfide	0.5	U	0.2	1	ug/L
1634-04-4	Methyl tert-butyl Ether	0.5	U	0.35	1	ug/L
79-20-9	Methyl Acetate	0.5	U	0.2	1	ug/L
75-09-2	Methylene Chloride	0.5	U	0.41	1	ug/L
156-60-5	trans-1,2-Dichloroethene	0.5	U	0.41	1	ug/L
75-34-3	1,1-Dichloroethane	0.5	U	0.36	1	ug/L
110-82-7	Cyclohexane	0.5	U	0.2	1	ug/L
78-93-3	2-Butanone	2.5	U	1.3	5	ug/L
56-23-5	Carbon Tetrachloride	0.5	U	0.2	1	ug/L
156-59-2	cis-1,2-Dichloroethene	0.5	U	0.35	1	ug/L
74-97-5	Bromochloromethane	0.5	U	0.2	1	ug/L
67-66-3	Chloroform	1		0.34	1	ug/L
71-55-6	1,1,1-Trichloroethane	0.5	U	0.4	1	ug/L
108-87-2	Methylcyclohexane	0.5	U	0.2	1	ug/L
71-43-2	Benzene	0.5	U	0.32	1	ug/L
107-06-2	1,2-Dichloroethane	0.5	U	0.48	1	ug/L
79-01-6	Trichloroethene	0.5	U	0.28	1	ug/L
78-87-5	1,2-Dichloropropane	0.5	U	0.46	1	ug/L
75-27-4	Bromodichloromethane	0.5	U	0.36	1	ug/L
108-10-1	4-Methyl-2-Pentanone	2.5	U	2.1	5	ug/L
108-88-3	Toluene	0.5	U	0.37	1	ug/L
10061-02-6	t-1,3-Dichloropropene	0.5	U	0.29	1	ug/L

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	06/14/11
Project:	CTO WE08	Date Received:	06/17/11
Client Sample ID:	FT-GW425-6165	SDG No.:	C2735
Lab Sample ID:	C2735-21	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG035674.D	1		06/20/11	VG062011

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
10061-01-5	cis-1,3-Dichloropropene	0.5	U	0.31	1	ug/L
79-00-5	1,1,2-Trichloroethane	0.5	U	0.38	1	ug/L
591-78-6	2-Hexanone	2.5	U	1.9	5	ug/L
124-48-1	Dibromochloromethane	0.5	U	0.2	1	ug/L
106-93-4	1,2-Dibromoethane	0.5	U	0.41	1	ug/L
127-18-4	Tetrachloroethene	0.5	U	0.27	1	ug/L
108-90-7	Chlorobenzene	0.5	U	0.49	1	ug/L
100-41-4	Ethyl Benzene	0.5	U	0.2	1	ug/L
179601-23-1	m/p-Xylenes	1	U	0.95	2	ug/L
95-47-6	o-Xylene	0.5	U	0.43	1	ug/L
100-42-5	Styrene	0.5	U	0.36	1	ug/L
75-25-2	Bromoform	0.5	U	0.47	1	ug/L
98-82-8	Isopropylbenzene	0.5	U	0.45	1	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	0.5	U	0.31	1	ug/L
541-73-1	1,3-Dichlorobenzene	0.5	U	0.43	1	ug/L
106-46-7	1,4-Dichlorobenzene	0.5	U	0.32	1	ug/L
95-50-1	1,2-Dichlorobenzene	0.5	U	0.45	1	ug/L
96-12-8	1,2-Dibromo-3-Chloropropane	0.5	U	0.46	1	ug/L
120-82-1	1,2,4-Trichlorobenzene	0.5	U	0.2	1	ug/L
87-61-6	1,2,3-Trichlorobenzene	0.5	U	0.2	1	ug/L
123-91-1	1,4-Dioxane	10	U	20	20	ug/L
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	52		70 - 120	104%	SPK: 50
1868-53-7	Dibromofluoromethane	50.9		85 - 115	102%	SPK: 50
2037-26-5	Toluene-d8	47.1		85 - 120	94%	SPK: 50
460-00-4	4-Bromofluorobenzene	45.1		75 - 120	90%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	642627	3.93			
540-36-3	1,4-Difluorobenzene	1134800	4.75			
3114-55-4	Chlorobenzene-d5	804432	9.71			
3855-82-1	1,4-Dichlorobenzene-d4	327355	13.41			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	06/13/11
Project:	CTO WE08	Date Received:	06/17/11
Client Sample ID:	FT-GW426-2125	SDG No.:	C2735
Lab Sample ID:	C2735-08	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG035652.D	1		06/20/11	VG061911

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	0.5	U	0.2	1	ug/L
74-87-3	Chloromethane	0.5	U	0.2	1	ug/L
75-01-4	Vinyl Chloride	0.5	U	0.34	1	ug/L
74-83-9	Bromomethane	0.5	U	0.2	1	ug/L
75-00-3	Chloroethane	0.5	U	0.2	1	ug/L
75-69-4	Trichlorofluoromethane	0.5	U	0.35	1	ug/L
76-13-1	1,1,2-Trichlorotrifluoroethane	0.5	U	0.45	1	ug/L
75-35-4	1,1-Dichloroethene	0.5	U	0.47	1	ug/L
67-64-1	Acetone	2.5	U	0.5	5	ug/L
75-15-0	Carbon Disulfide	0.5	U	0.2	1	ug/L
1634-04-4	Methyl tert-butyl Ether	0.5	U	0.35	1	ug/L
79-20-9	Methyl Acetate	0.5	U	0.2	1	ug/L
75-09-2	Methylene Chloride	0.5	U	0.41	1	ug/L
156-60-5	trans-1,2-Dichloroethene	0.5	U	0.41	1	ug/L
75-34-3	1,1-Dichloroethane	0.5	U	0.36	1	ug/L
110-82-7	Cyclohexane	0.5	U	0.2	1	ug/L
78-93-3	2-Butanone	2.5	U	1.3	5	ug/L
56-23-5	Carbon Tetrachloride	0.5	U	0.2	1	ug/L
156-59-2	cis-1,2-Dichloroethene	0.5	U	0.35	1	ug/L
74-97-5	Bromochloromethane	0.5	U	0.2	1	ug/L
67-66-3	Chloroform	0.5	U	0.34	1	ug/L
71-55-6	1,1,1-Trichloroethane	0.5	U	0.4	1	ug/L
108-87-2	Methylcyclohexane	0.5	U	0.2	1	ug/L
71-43-2	Benzene	0.5	U	0.32	1	ug/L
107-06-2	1,2-Dichloroethane	0.5	U	0.48	1	ug/L
79-01-6	Trichloroethene	0.5	U	0.28	1	ug/L
78-87-5	1,2-Dichloropropane	0.5	U	0.46	1	ug/L
75-27-4	Bromodichloromethane	0.5	U	0.36	1	ug/L
108-10-1	4-Methyl-2-Pentanone	2.5	U	2.1	5	ug/L
108-88-3	Toluene	0.5	U	0.37	1	ug/L
10061-02-6	t-1,3-Dichloropropene	0.5	U	0.29	1	ug/L

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	06/13/11
Project:	CTO WE08	Date Received:	06/17/11
Client Sample ID:	FT-GW426-2125	SDG No.:	C2735
Lab Sample ID:	C2735-08	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG035652.D	1		06/20/11	VG061911

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
10061-01-5	cis-1,3-Dichloropropene	0.5	U	0.31	1	ug/L
79-00-5	1,1,2-Trichloroethane	0.5	U	0.38	1	ug/L
591-78-6	2-Hexanone	2.5	U	1.9	5	ug/L
124-48-1	Dibromochloromethane	0.5	U	0.2	1	ug/L
106-93-4	1,2-Dibromoethane	0.5	U	0.41	1	ug/L
127-18-4	Tetrachloroethene	0.5	U	0.27	1	ug/L
108-90-7	Chlorobenzene	0.5	U	0.49	1	ug/L
100-41-4	Ethyl Benzene	0.5	U	0.2	1	ug/L
179601-23-1	m/p-Xylenes	1	U	0.95	2	ug/L
95-47-6	o-Xylene	0.5	U	0.43	1	ug/L
100-42-5	Styrene	0.5	U	0.36	1	ug/L
75-25-2	Bromoform	0.5	U	0.47	1	ug/L
98-82-8	Isopropylbenzene	0.5	U	0.45	1	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	0.5	U	0.31	1	ug/L
541-73-1	1,3-Dichlorobenzene	0.5	U	0.43	1	ug/L
106-46-7	1,4-Dichlorobenzene	0.5	U	0.32	1	ug/L
95-50-1	1,2-Dichlorobenzene	0.5	U	0.45	1	ug/L
96-12-8	1,2-Dibromo-3-Chloropropane	0.5	U	0.46	1	ug/L
120-82-1	1,2,4-Trichlorobenzene	0.5	U	0.2	1	ug/L
87-61-6	1,2,3-Trichlorobenzene	0.5	U	0.2	1	ug/L
123-91-1	1,4-Dioxane	10	U	20	20	ug/L
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	50.8		70 - 120	102%	SPK: 50
1868-53-7	Dibromofluoromethane	50.6		85 - 115	101%	SPK: 50
2037-26-5	Toluene-d8	45.2		85 - 120	90%	SPK: 50
460-00-4	4-Bromofluorobenzene	43.6		75 - 120	87%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	671852	3.93			
540-36-3	1,4-Difluorobenzene	1200990	4.75			
3114-55-4	Chlorobenzene-d5	837349	9.7			
3855-82-1	1,4-Dichlorobenzene-d4	335604	13.41			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	06/13/11
Project:	CTO WE08	Date Received:	06/17/11
Client Sample ID:	FT-GW426-3135	SDG No.:	C2735
Lab Sample ID:	C2735-09	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG035653.D	1		06/20/11	VG061911

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	0.5	U	0.2	1	ug/L
74-87-3	Chloromethane	0.5	U	0.2	1	ug/L
75-01-4	Vinyl Chloride	0.5	U	0.34	1	ug/L
74-83-9	Bromomethane	0.5	U	0.2	1	ug/L
75-00-3	Chloroethane	0.5	U	0.2	1	ug/L
75-69-4	Trichlorofluoromethane	0.5	U	0.35	1	ug/L
76-13-1	1,1,2-Trichlorotrifluoroethane	0.5	U	0.45	1	ug/L
75-35-4	1,1-Dichloroethene	0.5	U	0.47	1	ug/L
67-64-1	Acetone	2.5	U	0.5	5	ug/L
75-15-0	Carbon Disulfide	0.5	U	0.2	1	ug/L
1634-04-4	Methyl tert-butyl Ether	0.5	U	0.35	1	ug/L
79-20-9	Methyl Acetate	0.5	U	0.2	1	ug/L
75-09-2	Methylene Chloride	0.5	U	0.41	1	ug/L
156-60-5	trans-1,2-Dichloroethene	0.5	U	0.41	1	ug/L
75-34-3	1,1-Dichloroethane	0.5	U	0.36	1	ug/L
110-82-7	Cyclohexane	0.5	U	0.2	1	ug/L
78-93-3	2-Butanone	2.5	U	1.3	5	ug/L
56-23-5	Carbon Tetrachloride	0.5	U	0.2	1	ug/L
156-59-2	cis-1,2-Dichloroethene	0.5	U	0.35	1	ug/L
74-97-5	Bromochloromethane	0.5	U	0.2	1	ug/L
67-66-3	Chloroform	0.5	U	0.34	1	ug/L
71-55-6	1,1,1-Trichloroethane	0.5	U	0.4	1	ug/L
108-87-2	Methylcyclohexane	0.5	U	0.2	1	ug/L
71-43-2	Benzene	0.5	U	0.32	1	ug/L
107-06-2	1,2-Dichloroethane	0.5	U	0.48	1	ug/L
79-01-6	Trichloroethene	0.5	U	0.28	1	ug/L
78-87-5	1,2-Dichloropropane	0.5	U	0.46	1	ug/L
75-27-4	Bromodichloromethane	0.5	U	0.36	1	ug/L
108-10-1	4-Methyl-2-Pentanone	2.5	U	2.1	5	ug/L
108-88-3	Toluene	0.5	U	0.37	1	ug/L
10061-02-6	t-1,3-Dichloropropene	0.5	U	0.29	1	ug/L

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	06/13/11
Project:	CTO WE08	Date Received:	06/17/11
Client Sample ID:	FT-GW426-3135	SDG No.:	C2735
Lab Sample ID:	C2735-09	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG035653.D	1		06/20/11	VG061911

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
10061-01-5	cis-1,3-Dichloropropene	0.5	U	0.31	1	ug/L
79-00-5	1,1,2-Trichloroethane	0.5	U	0.38	1	ug/L
591-78-6	2-Hexanone	2.5	U	1.9	5	ug/L
124-48-1	Dibromochloromethane	0.5	U	0.2	1	ug/L
106-93-4	1,2-Dibromoethane	0.5	U	0.41	1	ug/L
127-18-4	Tetrachloroethene	0.5	U	0.27	1	ug/L
108-90-7	Chlorobenzene	0.5	U	0.49	1	ug/L
100-41-4	Ethyl Benzene	0.5	U	0.2	1	ug/L
179601-23-1	m/p-Xylenes	1	U	0.95	2	ug/L
95-47-6	o-Xylene	0.5	U	0.43	1	ug/L
100-42-5	Styrene	0.5	U	0.36	1	ug/L
75-25-2	Bromoform	0.5	U	0.47	1	ug/L
98-82-8	Isopropylbenzene	0.5	U	0.45	1	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	0.5	U	0.31	1	ug/L
541-73-1	1,3-Dichlorobenzene	0.5	U	0.43	1	ug/L
106-46-7	1,4-Dichlorobenzene	0.5	U	0.32	1	ug/L
95-50-1	1,2-Dichlorobenzene	0.5	U	0.45	1	ug/L
96-12-8	1,2-Dibromo-3-Chloropropane	0.5	U	0.46	1	ug/L
120-82-1	1,2,4-Trichlorobenzene	0.5	U	0.2	1	ug/L
87-61-6	1,2,3-Trichlorobenzene	0.5	U	0.2	1	ug/L
123-91-1	1,4-Dioxane	10	U	20	20	ug/L
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	51.5		70 - 120	103%	SPK: 50
1868-53-7	Dibromofluoromethane	49.4		85 - 115	99%	SPK: 50
2037-26-5	Toluene-d8	41	*	85 - 120	82%	SPK: 50
460-00-4	4-Bromofluorobenzene	44.4		75 - 120	89%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	658066	3.93			
540-36-3	1,4-Difluorobenzene	1194950	4.75			
3114-55-4	Chlorobenzene-d5	823356	9.7			
3855-82-1	1,4-Dichlorobenzene-d4	342377	13.41			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	06/13/11
Project:	CTO WE08	Date Received:	06/17/11
Client Sample ID:	FT-GW426-3135RE	SDG No.:	C2735
Lab Sample ID:	C2735-09RE	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG035678.D	1		06/20/11	VG062011

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	0.5	U	0.2	1	ug/L
74-87-3	Chloromethane	0.5	U	0.2	1	ug/L
75-01-4	Vinyl Chloride	0.5	U	0.34	1	ug/L
74-83-9	Bromomethane	0.5	U	0.2	1	ug/L
75-00-3	Chloroethane	0.5	U	0.2	1	ug/L
75-69-4	Trichlorofluoromethane	0.5	U	0.35	1	ug/L
76-13-1	1,1,2-Trichlorotrifluoroethane	0.5	U	0.45	1	ug/L
75-35-4	1,1-Dichloroethene	0.5	U	0.47	1	ug/L
67-64-1	Acetone	2.5	U	0.5	5	ug/L
75-15-0	Carbon Disulfide	0.5	U	0.2	1	ug/L
1634-04-4	Methyl tert-butyl Ether	0.5	U	0.35	1	ug/L
79-20-9	Methyl Acetate	0.5	U	0.2	1	ug/L
75-09-2	Methylene Chloride	0.5	U	0.41	1	ug/L
156-60-5	trans-1,2-Dichloroethene	0.5	U	0.41	1	ug/L
75-34-3	1,1-Dichloroethane	0.5	U	0.36	1	ug/L
110-82-7	Cyclohexane	0.5	U	0.2	1	ug/L
78-93-3	2-Butanone	2.5	U	1.3	5	ug/L
56-23-5	Carbon Tetrachloride	0.5	U	0.2	1	ug/L
156-59-2	cis-1,2-Dichloroethene	0.5	U	0.35	1	ug/L
74-97-5	Bromochloromethane	0.5	U	0.2	1	ug/L
67-66-3	Chloroform	0.5	U	0.34	1	ug/L
71-55-6	1,1,1-Trichloroethane	0.5	U	0.4	1	ug/L
108-87-2	Methylcyclohexane	0.5	U	0.2	1	ug/L
71-43-2	Benzene	0.5	U	0.32	1	ug/L
107-06-2	1,2-Dichloroethane	0.5	U	0.48	1	ug/L
79-01-6	Trichloroethene	0.5	U	0.28	1	ug/L
78-87-5	1,2-Dichloropropane	0.5	U	0.46	1	ug/L
75-27-4	Bromodichloromethane	0.5	U	0.36	1	ug/L
108-10-1	4-Methyl-2-Pentanone	2.5	U	2.1	5	ug/L
108-88-3	Toluene	0.5	U	0.37	1	ug/L
10061-02-6	t-1,3-Dichloropropene	0.5	U	0.29	1	ug/L

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	06/13/11
Project:	CTO WE08	Date Received:	06/17/11
Client Sample ID:	FT-GW426-3135RE	SDG No.:	C2735
Lab Sample ID:	C2735-09RE	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG035678.D	1		06/20/11	VG062011

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
10061-01-5	cis-1,3-Dichloropropene	0.5	U	0.31	1	ug/L
79-00-5	1,1,2-Trichloroethane	0.5	U	0.38	1	ug/L
591-78-6	2-Hexanone	2.5	U	1.9	5	ug/L
124-48-1	Dibromochloromethane	0.5	U	0.2	1	ug/L
106-93-4	1,2-Dibromoethane	0.5	U	0.41	1	ug/L
127-18-4	Tetrachloroethene	0.5	U	0.27	1	ug/L
108-90-7	Chlorobenzene	0.5	U	0.49	1	ug/L
100-41-4	Ethyl Benzene	0.5	U	0.2	1	ug/L
179601-23-1	m/p-Xylenes	1	U	0.95	2	ug/L
95-47-6	o-Xylene	0.5	U	0.43	1	ug/L
100-42-5	Styrene	0.5	U	0.36	1	ug/L
75-25-2	Bromoform	0.5	U	0.47	1	ug/L
98-82-8	Isopropylbenzene	0.5	U	0.45	1	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	0.5	U	0.31	1	ug/L
541-73-1	1,3-Dichlorobenzene	0.5	U	0.43	1	ug/L
106-46-7	1,4-Dichlorobenzene	0.5	U	0.32	1	ug/L
95-50-1	1,2-Dichlorobenzene	0.5	U	0.45	1	ug/L
96-12-8	1,2-Dibromo-3-Chloropropane	0.5	U	0.46	1	ug/L
120-82-1	1,2,4-Trichlorobenzene	0.5	U	0.2	1	ug/L
87-61-6	1,2,3-Trichlorobenzene	0.5	U	0.2	1	ug/L
123-91-1	1,4-Dioxane	10	U	20	20	ug/L
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	51.3		70 - 120	103%	SPK: 50
1868-53-7	Dibromofluoromethane	50.2		85 - 115	100%	SPK: 50
2037-26-5	Toluene-d8	41.1	*	85 - 120	82%	SPK: 50
460-00-4	4-Bromofluorobenzene	42.7		75 - 120	85%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	635813	3.92			
540-36-3	1,4-Difluorobenzene	1151770	4.74			
3114-55-4	Chlorobenzene-d5	795024	9.71			
3855-82-1	1,4-Dichlorobenzene-d4	321754	13.41			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	06/13/11
Project:	CTO WE08	Date Received:	06/17/11
Client Sample ID:	FT-GW426-4145	SDG No.:	C2735
Lab Sample ID:	C2735-10	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG035679.D	1		06/20/11	VG062011

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	0.5	U	0.2	1	ug/L
74-87-3	Chloromethane	0.5	U	0.2	1	ug/L
75-01-4	Vinyl Chloride	0.5	U	0.34	1	ug/L
74-83-9	Bromomethane	0.5	U	0.2	1	ug/L
75-00-3	Chloroethane	0.5	U	0.2	1	ug/L
75-69-4	Trichlorofluoromethane	0.5	U	0.35	1	ug/L
76-13-1	1,1,2-Trichlorotrifluoroethane	0.5	U	0.45	1	ug/L
75-35-4	1,1-Dichloroethene	0.5	U	0.47	1	ug/L
67-64-1	Acetone	2.5	U	0.5	5	ug/L
75-15-0	Carbon Disulfide	0.5	U	0.2	1	ug/L
1634-04-4	Methyl tert-butyl Ether	0.5	U	0.35	1	ug/L
79-20-9	Methyl Acetate	0.5	U	0.2	1	ug/L
75-09-2	Methylene Chloride	0.5	U	0.41	1	ug/L
156-60-5	trans-1,2-Dichloroethene	0.5	U	0.41	1	ug/L
75-34-3	1,1-Dichloroethane	0.5	U	0.36	1	ug/L
110-82-7	Cyclohexane	0.5	U	0.2	1	ug/L
78-93-3	2-Butanone	2.5	U	1.3	5	ug/L
56-23-5	Carbon Tetrachloride	0.5	U	0.2	1	ug/L
156-59-2	cis-1,2-Dichloroethene	0.5	U	0.35	1	ug/L
74-97-5	Bromochloromethane	0.5	U	0.2	1	ug/L
67-66-3	Chloroform	0.55	J	0.34	1	ug/L
71-55-6	1,1,1-Trichloroethane	0.5	U	0.4	1	ug/L
108-87-2	Methylcyclohexane	0.5	U	0.2	1	ug/L
71-43-2	Benzene	0.5	U	0.32	1	ug/L
107-06-2	1,2-Dichloroethane	0.5	U	0.48	1	ug/L
79-01-6	Trichloroethene	0.5	U	0.28	1	ug/L
78-87-5	1,2-Dichloropropane	0.5	U	0.46	1	ug/L
75-27-4	Bromodichloromethane	0.5	U	0.36	1	ug/L
108-10-1	4-Methyl-2-Pentanone	2.5	U	2.1	5	ug/L
108-88-3	Toluene	0.5	U	0.37	1	ug/L
10061-02-6	t-1,3-Dichloropropene	0.5	U	0.29	1	ug/L

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	06/13/11
Project:	CTO WE08	Date Received:	06/17/11
Client Sample ID:	FT-GW426-4145	SDG No.:	C2735
Lab Sample ID:	C2735-10	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG035679.D	1		06/20/11	VG062011

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
10061-01-5	cis-1,3-Dichloropropene	0.5	U	0.31	1	ug/L
79-00-5	1,1,2-Trichloroethane	0.5	U	0.38	1	ug/L
591-78-6	2-Hexanone	2.5	U	1.9	5	ug/L
124-48-1	Dibromochloromethane	0.5	U	0.2	1	ug/L
106-93-4	1,2-Dibromoethane	0.5	U	0.41	1	ug/L
127-18-4	Tetrachloroethene	0.5	U	0.27	1	ug/L
108-90-7	Chlorobenzene	0.5	U	0.49	1	ug/L
100-41-4	Ethyl Benzene	0.5	U	0.2	1	ug/L
179601-23-1	m/p-Xylenes	1	U	0.95	2	ug/L
95-47-6	o-Xylene	0.5	U	0.43	1	ug/L
100-42-5	Styrene	0.5	U	0.36	1	ug/L
75-25-2	Bromoform	0.5	U	0.47	1	ug/L
98-82-8	Isopropylbenzene	0.5	U	0.45	1	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	0.5	U	0.31	1	ug/L
541-73-1	1,3-Dichlorobenzene	0.5	U	0.43	1	ug/L
106-46-7	1,4-Dichlorobenzene	0.5	U	0.32	1	ug/L
95-50-1	1,2-Dichlorobenzene	0.5	U	0.45	1	ug/L
96-12-8	1,2-Dibromo-3-Chloropropane	0.5	U	0.46	1	ug/L
120-82-1	1,2,4-Trichlorobenzene	0.5	U	0.2	1	ug/L
87-61-6	1,2,3-Trichlorobenzene	0.5	U	0.2	1	ug/L
123-91-1	1,4-Dioxane	10	U	20	20	ug/L
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	49.9		70 - 120	100%	SPK: 50
1868-53-7	Dibromofluoromethane	49.5		85 - 115	99%	SPK: 50
2037-26-5	Toluene-d8	44.3		85 - 120	89%	SPK: 50
460-00-4	4-Bromofluorobenzene	43.3		75 - 120	87%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	652952	3.93			
540-36-3	1,4-Difluorobenzene	1158210	4.74			
3114-55-4	Chlorobenzene-d5	791111	9.7			
3855-82-1	1,4-Dichlorobenzene-d4	323808	13.41			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	06/13/11
Project:	CTO WE08	Date Received:	06/17/11
Client Sample ID:	FT-DUP01-20110613	SDG No.:	C2735
Lab Sample ID:	C2735-11	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG035655.D	1		06/20/11	VG061911

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	0.5	U	0.2	1	ug/L
74-87-3	Chloromethane	0.5	U	0.2	1	ug/L
75-01-4	Vinyl Chloride	0.5	U	0.34	1	ug/L
74-83-9	Bromomethane	0.5	U	0.2	1	ug/L
75-00-3	Chloroethane	0.5	U	0.2	1	ug/L
75-69-4	Trichlorofluoromethane	0.5	U	0.35	1	ug/L
76-13-1	1,1,2-Trichlorotrifluoroethane	0.5	U	0.45	1	ug/L
75-35-4	1,1-Dichloroethene	0.5	U	0.47	1	ug/L
67-64-1	Acetone	2.5	U	0.5	5	ug/L
75-15-0	Carbon Disulfide	0.5	U	0.2	1	ug/L
1634-04-4	Methyl tert-butyl Ether	0.5	U	0.35	1	ug/L
79-20-9	Methyl Acetate	0.5	U	0.2	1	ug/L
75-09-2	Methylene Chloride	0.5	U	0.41	1	ug/L
156-60-5	trans-1,2-Dichloroethene	0.5	U	0.41	1	ug/L
75-34-3	1,1-Dichloroethane	0.5	U	0.36	1	ug/L
110-82-7	Cyclohexane	0.5	U	0.2	1	ug/L
78-93-3	2-Butanone	2.5	U	1.3	5	ug/L
56-23-5	Carbon Tetrachloride	0.5	U	0.2	1	ug/L
156-59-2	cis-1,2-Dichloroethene	0.5	U	0.35	1	ug/L
74-97-5	Bromochloromethane	0.5	U	0.2	1	ug/L
67-66-3	Chloroform	0.55	J	0.34	1	ug/L
71-55-6	1,1,1-Trichloroethane	0.5	U	0.4	1	ug/L
108-87-2	Methylcyclohexane	0.5	U	0.2	1	ug/L
71-43-2	Benzene	0.5	U	0.32	1	ug/L
107-06-2	1,2-Dichloroethane	0.5	U	0.48	1	ug/L
79-01-6	Trichloroethene	0.5	U	0.28	1	ug/L
78-87-5	1,2-Dichloropropane	0.5	U	0.46	1	ug/L
75-27-4	Bromodichloromethane	0.5	U	0.36	1	ug/L
108-10-1	4-Methyl-2-Pentanone	2.5	U	2.1	5	ug/L
108-88-3	Toluene	0.5	U	0.37	1	ug/L
10061-02-6	t-1,3-Dichloropropene	0.5	U	0.29	1	ug/L

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	06/13/11
Project:	CTO WE08	Date Received:	06/17/11
Client Sample ID:	FT-DUP01-20110613	SDG No.:	C2735
Lab Sample ID:	C2735-11	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG035655.D	1		06/20/11	VG061911

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
10061-01-5	cis-1,3-Dichloropropene	0.5	U	0.31	1	ug/L
79-00-5	1,1,2-Trichloroethane	0.5	U	0.38	1	ug/L
591-78-6	2-Hexanone	2.5	U	1.9	5	ug/L
124-48-1	Dibromochloromethane	0.5	U	0.2	1	ug/L
106-93-4	1,2-Dibromoethane	0.5	U	0.41	1	ug/L
127-18-4	Tetrachloroethene	0.5	U	0.27	1	ug/L
108-90-7	Chlorobenzene	0.5	U	0.49	1	ug/L
100-41-4	Ethyl Benzene	0.5	U	0.2	1	ug/L
179601-23-1	m/p-Xylenes	1	U	0.95	2	ug/L
95-47-6	o-Xylene	0.5	U	0.43	1	ug/L
100-42-5	Styrene	0.5	U	0.36	1	ug/L
75-25-2	Bromoform	0.5	U	0.47	1	ug/L
98-82-8	Isopropylbenzene	0.5	U	0.45	1	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	0.5	U	0.31	1	ug/L
541-73-1	1,3-Dichlorobenzene	0.5	U	0.43	1	ug/L
106-46-7	1,4-Dichlorobenzene	0.5	U	0.32	1	ug/L
95-50-1	1,2-Dichlorobenzene	0.5	U	0.45	1	ug/L
96-12-8	1,2-Dibromo-3-Chloropropane	0.5	U	0.46	1	ug/L
120-82-1	1,2,4-Trichlorobenzene	0.5	U	0.2	1	ug/L
87-61-6	1,2,3-Trichlorobenzene	0.5	U	0.2	1	ug/L
123-91-1	1,4-Dioxane	10	U	20	20	ug/L
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	50.6		70 - 120	101%	SPK: 50
1868-53-7	Dibromofluoromethane	51.5		85 - 115	103%	SPK: 50
2037-26-5	Toluene-d8	44.4		85 - 120	89%	SPK: 50
460-00-4	4-Bromofluorobenzene	44.6		75 - 120	89%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	655028	3.92			
540-36-3	1,4-Difluorobenzene	1170950	4.75			
3114-55-4	Chlorobenzene-d5	800082	9.7			
3855-82-1	1,4-Dichlorobenzene-d4	334071	13.4			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	06/13/11
Project:	CTO WE08	Date Received:	06/17/11
Client Sample ID:	FT-GW426-5155	SDG No.:	C2735
Lab Sample ID:	C2735-12	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG035669.D	1		06/20/11	VG062011

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	0.5	U	0.2	1	ug/L
74-87-3	Chloromethane	0.5	U	0.2	1	ug/L
75-01-4	Vinyl Chloride	0.5	U	0.34	1	ug/L
74-83-9	Bromomethane	0.5	U	0.2	1	ug/L
75-00-3	Chloroethane	0.5	U	0.2	1	ug/L
75-69-4	Trichlorofluoromethane	0.5	U	0.35	1	ug/L
76-13-1	1,1,2-Trichlorotrifluoroethane	0.5	U	0.45	1	ug/L
75-35-4	1,1-Dichloroethene	0.5	U	0.47	1	ug/L
67-64-1	Acetone	2.5	U	0.5	5	ug/L
75-15-0	Carbon Disulfide	0.5	U	0.2	1	ug/L
1634-04-4	Methyl tert-butyl Ether	0.5	U	0.35	1	ug/L
79-20-9	Methyl Acetate	0.5	U	0.2	1	ug/L
75-09-2	Methylene Chloride	0.5	U	0.41	1	ug/L
156-60-5	trans-1,2-Dichloroethene	0.5	U	0.41	1	ug/L
75-34-3	1,1-Dichloroethane	0.5	U	0.36	1	ug/L
110-82-7	Cyclohexane	0.5	U	0.2	1	ug/L
78-93-3	2-Butanone	2.5	U	1.3	5	ug/L
56-23-5	Carbon Tetrachloride	0.5	U	0.2	1	ug/L
156-59-2	cis-1,2-Dichloroethene	0.5	U	0.35	1	ug/L
74-97-5	Bromochloromethane	0.5	U	0.2	1	ug/L
67-66-3	Chloroform	0.89	J	0.34	1	ug/L
71-55-6	1,1,1-Trichloroethane	0.5	U	0.4	1	ug/L
108-87-2	Methylcyclohexane	0.5	U	0.2	1	ug/L
71-43-2	Benzene	0.5	U	0.32	1	ug/L
107-06-2	1,2-Dichloroethane	0.5	U	0.48	1	ug/L
79-01-6	Trichloroethene	0.5	U	0.28	1	ug/L
78-87-5	1,2-Dichloropropane	0.5	U	0.46	1	ug/L
75-27-4	Bromodichloromethane	0.5	U	0.36	1	ug/L
108-10-1	4-Methyl-2-Pentanone	2.5	U	2.1	5	ug/L
108-88-3	Toluene	0.5	U	0.37	1	ug/L
10061-02-6	t-1,3-Dichloropropene	0.5	U	0.29	1	ug/L

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	06/13/11
Project:	CTO WE08	Date Received:	06/17/11
Client Sample ID:	FT-GW426-5155	SDG No.:	C2735
Lab Sample ID:	C2735-12	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG035669.D	1		06/20/11	VG062011

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
10061-01-5	cis-1,3-Dichloropropene	0.5	U	0.31	1	ug/L
79-00-5	1,1,2-Trichloroethane	0.5	U	0.38	1	ug/L
591-78-6	2-Hexanone	2.5	U	1.9	5	ug/L
124-48-1	Dibromochloromethane	0.5	U	0.2	1	ug/L
106-93-4	1,2-Dibromoethane	0.5	U	0.41	1	ug/L
127-18-4	Tetrachloroethene	0.5	U	0.27	1	ug/L
108-90-7	Chlorobenzene	0.5	U	0.49	1	ug/L
100-41-4	Ethyl Benzene	0.5	U	0.2	1	ug/L
179601-23-1	m/p-Xylenes	1	U	0.95	2	ug/L
95-47-6	o-Xylene	0.5	U	0.43	1	ug/L
100-42-5	Styrene	0.5	U	0.36	1	ug/L
75-25-2	Bromoform	0.5	U	0.47	1	ug/L
98-82-8	Isopropylbenzene	0.5	U	0.45	1	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	0.5	U	0.31	1	ug/L
541-73-1	1,3-Dichlorobenzene	0.5	U	0.43	1	ug/L
106-46-7	1,4-Dichlorobenzene	0.5	U	0.32	1	ug/L
95-50-1	1,2-Dichlorobenzene	0.5	U	0.45	1	ug/L
96-12-8	1,2-Dibromo-3-Chloropropane	0.5	U	0.46	1	ug/L
120-82-1	1,2,4-Trichlorobenzene	0.5	U	0.2	1	ug/L
87-61-6	1,2,3-Trichlorobenzene	0.5	U	0.2	1	ug/L
123-91-1	1,4-Dioxane	10	U	20	20	ug/L
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	49.6		70 - 120	99%	SPK: 50
1868-53-7	Dibromofluoromethane	50.2		85 - 115	100%	SPK: 50
2037-26-5	Toluene-d8	44.4		85 - 120	89%	SPK: 50
460-00-4	4-Bromofluorobenzene	44.7		75 - 120	89%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	703889	3.93			
540-36-3	1,4-Difluorobenzene	1224400	4.75			
3114-55-4	Chlorobenzene-d5	825243	9.71			
3855-82-1	1,4-Dichlorobenzene-d4	343750	13.41			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	06/13/11
Project:	CTO WE08	Date Received:	06/17/11
Client Sample ID:	FT-GW426-6165	SDG No.:	C2735
Lab Sample ID:	C2735-15	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG035656.D	1		06/20/11	VG061911

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	0.5	U	0.2	1	ug/L
74-87-3	Chloromethane	0.5	U	0.2	1	ug/L
75-01-4	Vinyl Chloride	0.5	U	0.34	1	ug/L
74-83-9	Bromomethane	0.5	U	0.2	1	ug/L
75-00-3	Chloroethane	0.5	U	0.2	1	ug/L
75-69-4	Trichlorofluoromethane	0.5	U	0.35	1	ug/L
76-13-1	1,1,2-Trichlorotrifluoroethane	0.5	U	0.45	1	ug/L
75-35-4	1,1-Dichloroethene	0.5	U	0.47	1	ug/L
67-64-1	Acetone	2.5	U	0.5	5	ug/L
75-15-0	Carbon Disulfide	0.5	U	0.2	1	ug/L
1634-04-4	Methyl tert-butyl Ether	0.5	U	0.35	1	ug/L
79-20-9	Methyl Acetate	0.5	U	0.2	1	ug/L
75-09-2	Methylene Chloride	0.5	U	0.41	1	ug/L
156-60-5	trans-1,2-Dichloroethene	0.5	U	0.41	1	ug/L
75-34-3	1,1-Dichloroethane	0.5	U	0.36	1	ug/L
110-82-7	Cyclohexane	0.5	U	0.2	1	ug/L
78-93-3	2-Butanone	2.5	U	1.3	5	ug/L
56-23-5	Carbon Tetrachloride	0.5	U	0.2	1	ug/L
156-59-2	cis-1,2-Dichloroethene	0.5	U	0.35	1	ug/L
74-97-5	Bromochloromethane	0.5	U	0.2	1	ug/L
67-66-3	Chloroform	0.53	J	0.34	1	ug/L
71-55-6	1,1,1-Trichloroethane	0.5	U	0.4	1	ug/L
108-87-2	Methylcyclohexane	0.5	U	0.2	1	ug/L
71-43-2	Benzene	0.5	U	0.32	1	ug/L
107-06-2	1,2-Dichloroethane	0.5	U	0.48	1	ug/L
79-01-6	Trichloroethene	0.5	U	0.28	1	ug/L
78-87-5	1,2-Dichloropropane	0.5	U	0.46	1	ug/L
75-27-4	Bromodichloromethane	0.5	U	0.36	1	ug/L
108-10-1	4-Methyl-2-Pentanone	2.5	U	2.1	5	ug/L
108-88-3	Toluene	0.5	U	0.37	1	ug/L
10061-02-6	t-1,3-Dichloropropene	0.5	U	0.29	1	ug/L

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	06/13/11
Project:	CTO WE08	Date Received:	06/17/11
Client Sample ID:	FT-GW426-6165	SDG No.:	C2735
Lab Sample ID:	C2735-15	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG035656.D	1		06/20/11	VG061911

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
10061-01-5	cis-1,3-Dichloropropene	0.5	U	0.31	1	ug/L
79-00-5	1,1,2-Trichloroethane	0.5	U	0.38	1	ug/L
591-78-6	2-Hexanone	2.5	U	1.9	5	ug/L
124-48-1	Dibromochloromethane	0.5	U	0.2	1	ug/L
106-93-4	1,2-Dibromoethane	0.5	U	0.41	1	ug/L
127-18-4	Tetrachloroethene	0.5	U	0.27	1	ug/L
108-90-7	Chlorobenzene	0.5	U	0.49	1	ug/L
100-41-4	Ethyl Benzene	0.5	U	0.2	1	ug/L
179601-23-1	m/p-Xylenes	1	U	0.95	2	ug/L
95-47-6	o-Xylene	0.5	U	0.43	1	ug/L
100-42-5	Styrene	0.5	U	0.36	1	ug/L
75-25-2	Bromoform	0.5	U	0.47	1	ug/L
98-82-8	Isopropylbenzene	0.5	U	0.45	1	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	0.5	U	0.31	1	ug/L
541-73-1	1,3-Dichlorobenzene	0.5	U	0.43	1	ug/L
106-46-7	1,4-Dichlorobenzene	0.5	U	0.32	1	ug/L
95-50-1	1,2-Dichlorobenzene	0.5	U	0.45	1	ug/L
96-12-8	1,2-Dibromo-3-Chloropropane	0.5	U	0.46	1	ug/L
120-82-1	1,2,4-Trichlorobenzene	0.5	U	0.2	1	ug/L
87-61-6	1,2,3-Trichlorobenzene	0.5	U	0.2	1	ug/L
123-91-1	1,4-Dioxane	10	U	20	20	ug/L
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	52.1		70 - 120	104%	SPK: 50
1868-53-7	Dibromofluoromethane	50.6		85 - 115	101%	SPK: 50
2037-26-5	Toluene-d8	38.5	*	85 - 120	77%	SPK: 50
460-00-4	4-Bromofluorobenzene	43.4		75 - 120	87%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	647706	3.92			
540-36-3	1,4-Difluorobenzene	1155840	4.74			
3114-55-4	Chlorobenzene-d5	798508	9.71			
3855-82-1	1,4-Dichlorobenzene-d4	328635	13.41			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	06/13/11
Project:	CTO WE08	Date Received:	06/17/11
Client Sample ID:	FT-GW426-6165RE	SDG No.:	C2735
Lab Sample ID:	C2735-15RE	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG035680.D	1		06/21/11	VG062011

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	0.5	U	0.2	1	ug/L
74-87-3	Chloromethane	0.5	U	0.2	1	ug/L
75-01-4	Vinyl Chloride	0.5	U	0.34	1	ug/L
74-83-9	Bromomethane	0.5	U	0.2	1	ug/L
75-00-3	Chloroethane	0.5	U	0.2	1	ug/L
75-69-4	Trichlorofluoromethane	0.5	U	0.35	1	ug/L
76-13-1	1,1,2-Trichlorotrifluoroethane	0.5	U	0.45	1	ug/L
75-35-4	1,1-Dichloroethene	0.5	U	0.47	1	ug/L
67-64-1	Acetone	2.5	U	0.5	5	ug/L
75-15-0	Carbon Disulfide	0.5	U	0.2	1	ug/L
1634-04-4	Methyl tert-butyl Ether	0.5	U	0.35	1	ug/L
79-20-9	Methyl Acetate	0.5	U	0.2	1	ug/L
75-09-2	Methylene Chloride	0.5	U	0.41	1	ug/L
156-60-5	trans-1,2-Dichloroethene	0.5	U	0.41	1	ug/L
75-34-3	1,1-Dichloroethane	0.5	U	0.36	1	ug/L
110-82-7	Cyclohexane	0.5	U	0.2	1	ug/L
78-93-3	2-Butanone	2.5	U	1.3	5	ug/L
56-23-5	Carbon Tetrachloride	0.5	U	0.2	1	ug/L
156-59-2	cis-1,2-Dichloroethene	0.5	U	0.35	1	ug/L
74-97-5	Bromochloromethane	0.5	U	0.2	1	ug/L
67-66-3	Chloroform	0.5	U	0.34	1	ug/L
71-55-6	1,1,1-Trichloroethane	0.5	U	0.4	1	ug/L
108-87-2	Methylcyclohexane	0.5	U	0.2	1	ug/L
71-43-2	Benzene	0.5	U	0.32	1	ug/L
107-06-2	1,2-Dichloroethane	0.5	U	0.48	1	ug/L
79-01-6	Trichloroethene	0.5	U	0.28	1	ug/L
78-87-5	1,2-Dichloropropane	0.5	U	0.46	1	ug/L
75-27-4	Bromodichloromethane	0.5	U	0.36	1	ug/L
108-10-1	4-Methyl-2-Pentanone	2.5	U	2.1	5	ug/L
108-88-3	Toluene	0.5	U	0.37	1	ug/L
10061-02-6	t-1,3-Dichloropropene	0.5	U	0.29	1	ug/L

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	06/13/11
Project:	CTO WE08	Date Received:	06/17/11
Client Sample ID:	FT-GW426-6165RE	SDG No.:	C2735
Lab Sample ID:	C2735-15RE	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG035680.D	1		06/21/11	VG062011

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
10061-01-5	cis-1,3-Dichloropropene	0.5	U	0.31	1	ug/L
79-00-5	1,1,2-Trichloroethane	0.5	U	0.38	1	ug/L
591-78-6	2-Hexanone	2.5	U	1.9	5	ug/L
124-48-1	Dibromochloromethane	0.5	U	0.2	1	ug/L
106-93-4	1,2-Dibromoethane	0.5	U	0.41	1	ug/L
127-18-4	Tetrachloroethene	0.5	U	0.27	1	ug/L
108-90-7	Chlorobenzene	0.5	U	0.49	1	ug/L
100-41-4	Ethyl Benzene	0.5	U	0.2	1	ug/L
179601-23-1	m/p-Xylenes	1	U	0.95	2	ug/L
95-47-6	o-Xylene	0.5	U	0.43	1	ug/L
100-42-5	Styrene	0.5	U	0.36	1	ug/L
75-25-2	Bromoform	0.5	U	0.47	1	ug/L
98-82-8	Isopropylbenzene	0.5	U	0.45	1	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	0.5	U	0.31	1	ug/L
541-73-1	1,3-Dichlorobenzene	0.5	U	0.43	1	ug/L
106-46-7	1,4-Dichlorobenzene	0.5	U	0.32	1	ug/L
95-50-1	1,2-Dichlorobenzene	0.5	U	0.45	1	ug/L
96-12-8	1,2-Dibromo-3-Chloropropane	0.5	U	0.46	1	ug/L
120-82-1	1,2,4-Trichlorobenzene	0.5	U	0.2	1	ug/L
87-61-6	1,2,3-Trichlorobenzene	0.5	U	0.2	1	ug/L
123-91-1	1,4-Dioxane	10	U	20	20	ug/L
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	51.4		70 - 120	103%	SPK: 50
1868-53-7	Dibromofluoromethane	52.2		85 - 115	104%	SPK: 50
2037-26-5	Toluene-d8	37.8	*	85 - 120	76%	SPK: 50
460-00-4	4-Bromofluorobenzene	44.2		75 - 120	88%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	630823	3.93			
540-36-3	1,4-Difluorobenzene	1092800	4.75			
3114-55-4	Chlorobenzene-d5	784906	9.7			
3855-82-1	1,4-Dichlorobenzene-d4	317334	13.41			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	06/13/11
Project:	CTO WE08	Date Received:	06/17/11
Client Sample ID:	FT-GW427-2125	SDG No.:	C2735
Lab Sample ID:	C2735-02	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG035646.D	1		06/20/11	VG061911

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	0.5	U	0.2	1	ug/L
74-87-3	Chloromethane	0.5	U	0.2	1	ug/L
75-01-4	Vinyl Chloride	0.5	U	0.34	1	ug/L
74-83-9	Bromomethane	0.5	U	0.2	1	ug/L
75-00-3	Chloroethane	0.5	U	0.2	1	ug/L
75-69-4	Trichlorofluoromethane	0.5	U	0.35	1	ug/L
76-13-1	1,1,2-Trichlorotrifluoroethane	0.5	U	0.45	1	ug/L
75-35-4	1,1-Dichloroethene	0.5	U	0.47	1	ug/L
67-64-1	Acetone	2.5	U	0.5	5	ug/L
75-15-0	Carbon Disulfide	0.5	U	0.2	1	ug/L
1634-04-4	Methyl tert-butyl Ether	0.5	U	0.35	1	ug/L
79-20-9	Methyl Acetate	0.5	U	0.2	1	ug/L
75-09-2	Methylene Chloride	0.5	U	0.41	1	ug/L
156-60-5	trans-1,2-Dichloroethene	0.5	U	0.41	1	ug/L
75-34-3	1,1-Dichloroethane	0.5	U	0.36	1	ug/L
110-82-7	Cyclohexane	0.5	U	0.2	1	ug/L
78-93-3	2-Butanone	2.5	U	1.3	5	ug/L
56-23-5	Carbon Tetrachloride	0.5	U	0.2	1	ug/L
156-59-2	cis-1,2-Dichloroethene	0.5	U	0.35	1	ug/L
74-97-5	Bromochloromethane	0.5	U	0.2	1	ug/L
67-66-3	Chloroform	0.5	U	0.34	1	ug/L
71-55-6	1,1,1-Trichloroethane	0.5	U	0.4	1	ug/L
108-87-2	Methylcyclohexane	0.5	U	0.2	1	ug/L
71-43-2	Benzene	0.5	U	0.32	1	ug/L
107-06-2	1,2-Dichloroethane	0.5	U	0.48	1	ug/L
79-01-6	Trichloroethene	0.5	U	0.28	1	ug/L
78-87-5	1,2-Dichloropropane	0.5	U	0.46	1	ug/L
75-27-4	Bromodichloromethane	0.5	U	0.36	1	ug/L
108-10-1	4-Methyl-2-Pentanone	2.5	U	2.1	5	ug/L
108-88-3	Toluene	0.5	U	0.37	1	ug/L
10061-02-6	t-1,3-Dichloropropene	0.5	U	0.29	1	ug/L

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	06/13/11
Project:	CTO WE08	Date Received:	06/17/11
Client Sample ID:	FT-GW427-2125	SDG No.:	C2735
Lab Sample ID:	C2735-02	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG035646.D	1		06/20/11	VG061911

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
10061-01-5	cis-1,3-Dichloropropene	0.5	U	0.31	1	ug/L
79-00-5	1,1,2-Trichloroethane	0.5	U	0.38	1	ug/L
591-78-6	2-Hexanone	2.5	U	1.9	5	ug/L
124-48-1	Dibromochloromethane	0.5	U	0.2	1	ug/L
106-93-4	1,2-Dibromoethane	0.5	U	0.41	1	ug/L
127-18-4	Tetrachloroethene	0.5	U	0.27	1	ug/L
108-90-7	Chlorobenzene	0.5	U	0.49	1	ug/L
100-41-4	Ethyl Benzene	0.5	U	0.2	1	ug/L
179601-23-1	m/p-Xylenes	1	U	0.95	2	ug/L
95-47-6	o-Xylene	0.5	U	0.43	1	ug/L
100-42-5	Styrene	0.5	U	0.36	1	ug/L
75-25-2	Bromoform	0.5	U	0.47	1	ug/L
98-82-8	Isopropylbenzene	0.5	U	0.45	1	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	0.5	U	0.31	1	ug/L
541-73-1	1,3-Dichlorobenzene	0.5	U	0.43	1	ug/L
106-46-7	1,4-Dichlorobenzene	0.5	U	0.32	1	ug/L
95-50-1	1,2-Dichlorobenzene	0.5	U	0.45	1	ug/L
96-12-8	1,2-Dibromo-3-Chloropropane	0.5	U	0.46	1	ug/L
120-82-1	1,2,4-Trichlorobenzene	0.5	U	0.2	1	ug/L
87-61-6	1,2,3-Trichlorobenzene	0.5	U	0.2	1	ug/L
123-91-1	1,4-Dioxane	10	U	20	20	ug/L
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	49.5		70 - 120	99%	SPK: 50
1868-53-7	Dibromofluoromethane	50.8		85 - 115	102%	SPK: 50
2037-26-5	Toluene-d8	41.1	*	85 - 120	82%	SPK: 50
460-00-4	4-Bromofluorobenzene	45.7		75 - 120	91%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	730395	3.92			
540-36-3	1,4-Difluorobenzene	1264640	4.74			
3114-55-4	Chlorobenzene-d5	883497	9.71			
3855-82-1	1,4-Dichlorobenzene-d4	366687	13.41			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	06/13/11
Project:	CTO WE08	Date Received:	06/17/11
Client Sample ID:	FT-GW427-2125RE	SDG No.:	C2735
Lab Sample ID:	C2735-02RE	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG035676.D	1		06/20/11	VG062011

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	0.5	U	0.2	1	ug/L
74-87-3	Chloromethane	0.5	U	0.2	1	ug/L
75-01-4	Vinyl Chloride	0.5	U	0.34	1	ug/L
74-83-9	Bromomethane	0.5	U	0.2	1	ug/L
75-00-3	Chloroethane	0.5	U	0.2	1	ug/L
75-69-4	Trichlorofluoromethane	0.5	U	0.35	1	ug/L
76-13-1	1,1,2-Trichlorotrifluoroethane	0.5	U	0.45	1	ug/L
75-35-4	1,1-Dichloroethene	0.5	U	0.47	1	ug/L
67-64-1	Acetone	2.5	U	0.5	5	ug/L
75-15-0	Carbon Disulfide	0.5	U	0.2	1	ug/L
1634-04-4	Methyl tert-butyl Ether	0.5	U	0.35	1	ug/L
79-20-9	Methyl Acetate	0.5	U	0.2	1	ug/L
75-09-2	Methylene Chloride	0.5	U	0.41	1	ug/L
156-60-5	trans-1,2-Dichloroethene	0.5	U	0.41	1	ug/L
75-34-3	1,1-Dichloroethane	0.5	U	0.36	1	ug/L
110-82-7	Cyclohexane	0.5	U	0.2	1	ug/L
78-93-3	2-Butanone	2.5	U	1.3	5	ug/L
56-23-5	Carbon Tetrachloride	0.5	U	0.2	1	ug/L
156-59-2	cis-1,2-Dichloroethene	0.5	U	0.35	1	ug/L
74-97-5	Bromochloromethane	0.5	U	0.2	1	ug/L
67-66-3	Chloroform	0.5	U	0.34	1	ug/L
71-55-6	1,1,1-Trichloroethane	0.5	U	0.4	1	ug/L
108-87-2	Methylcyclohexane	0.5	U	0.2	1	ug/L
71-43-2	Benzene	0.5	U	0.32	1	ug/L
107-06-2	1,2-Dichloroethane	0.5	U	0.48	1	ug/L
79-01-6	Trichloroethene	0.5	U	0.28	1	ug/L
78-87-5	1,2-Dichloropropane	0.5	U	0.46	1	ug/L
75-27-4	Bromodichloromethane	0.5	U	0.36	1	ug/L
108-10-1	4-Methyl-2-Pentanone	2.5	U	2.1	5	ug/L
108-88-3	Toluene	0.5	U	0.37	1	ug/L
10061-02-6	t-1,3-Dichloropropene	0.5	U	0.29	1	ug/L

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	06/13/11
Project:	CTO WE08	Date Received:	06/17/11
Client Sample ID:	FT-GW427-2125RE	SDG No.:	C2735
Lab Sample ID:	C2735-02RE	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG035676.D	1		06/20/11	VG062011

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
10061-01-5	cis-1,3-Dichloropropene	0.5	U	0.31	1	ug/L
79-00-5	1,1,2-Trichloroethane	0.5	U	0.38	1	ug/L
591-78-6	2-Hexanone	2.5	U	1.9	5	ug/L
124-48-1	Dibromochloromethane	0.5	U	0.2	1	ug/L
106-93-4	1,2-Dibromoethane	0.5	U	0.41	1	ug/L
127-18-4	Tetrachloroethene	0.5	U	0.27	1	ug/L
108-90-7	Chlorobenzene	0.5	U	0.49	1	ug/L
100-41-4	Ethyl Benzene	0.5	U	0.2	1	ug/L
179601-23-1	m/p-Xylenes	1	U	0.95	2	ug/L
95-47-6	o-Xylene	0.5	U	0.43	1	ug/L
100-42-5	Styrene	0.5	U	0.36	1	ug/L
75-25-2	Bromoform	0.5	U	0.47	1	ug/L
98-82-8	Isopropylbenzene	0.5	U	0.45	1	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	0.5	U	0.31	1	ug/L
541-73-1	1,3-Dichlorobenzene	0.5	U	0.43	1	ug/L
106-46-7	1,4-Dichlorobenzene	0.5	U	0.32	1	ug/L
95-50-1	1,2-Dichlorobenzene	0.5	U	0.45	1	ug/L
96-12-8	1,2-Dibromo-3-Chloropropane	0.5	U	0.46	1	ug/L
120-82-1	1,2,4-Trichlorobenzene	0.5	U	0.2	1	ug/L
87-61-6	1,2,3-Trichlorobenzene	0.5	U	0.2	1	ug/L
123-91-1	1,4-Dioxane	10	U	20	20	ug/L
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	53.2		70 - 120	106%	SPK: 50
1868-53-7	Dibromofluoromethane	52.2		85 - 115	104%	SPK: 50
2037-26-5	Toluene-d8	37.7	*	85 - 120	75%	SPK: 50
460-00-4	4-Bromofluorobenzene	45		75 - 120	90%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	626907	3.93			
540-36-3	1,4-Difluorobenzene	1122000	4.74			
3114-55-4	Chlorobenzene-d5	781540	9.7			
3855-82-1	1,4-Dichlorobenzene-d4	337909	13.41			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	06/13/11
Project:	CTO WE08	Date Received:	06/17/11
Client Sample ID:	FT-GW427-3135	SDG No.:	C2735
Lab Sample ID:	C2735-03	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG035677.D	1		06/20/11	VG062011

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	0.5	U	0.2	1	ug/L
74-87-3	Chloromethane	0.5	U	0.2	1	ug/L
75-01-4	Vinyl Chloride	0.5	U	0.34	1	ug/L
74-83-9	Bromomethane	0.5	U	0.2	1	ug/L
75-00-3	Chloroethane	0.5	U	0.2	1	ug/L
75-69-4	Trichlorofluoromethane	0.5	U	0.35	1	ug/L
76-13-1	1,1,2-Trichlorotrifluoroethane	0.5	U	0.45	1	ug/L
75-35-4	1,1-Dichloroethene	0.5	U	0.47	1	ug/L
67-64-1	Acetone	2.5	U	0.5	5	ug/L
75-15-0	Carbon Disulfide	0.5	U	0.2	1	ug/L
1634-04-4	Methyl tert-butyl Ether	0.5	U	0.35	1	ug/L
79-20-9	Methyl Acetate	0.5	U	0.2	1	ug/L
75-09-2	Methylene Chloride	0.5	U	0.41	1	ug/L
156-60-5	trans-1,2-Dichloroethene	0.5	U	0.41	1	ug/L
75-34-3	1,1-Dichloroethane	0.5	U	0.36	1	ug/L
110-82-7	Cyclohexane	0.5	U	0.2	1	ug/L
78-93-3	2-Butanone	2.5	U	1.3	5	ug/L
56-23-5	Carbon Tetrachloride	0.5	U	0.2	1	ug/L
156-59-2	cis-1,2-Dichloroethene	0.5	U	0.35	1	ug/L
74-97-5	Bromochloromethane	0.5	U	0.2	1	ug/L
67-66-3	Chloroform	0.5	U	0.34	1	ug/L
71-55-6	1,1,1-Trichloroethane	0.5	U	0.4	1	ug/L
108-87-2	Methylcyclohexane	0.5	U	0.2	1	ug/L
71-43-2	Benzene	0.5	U	0.32	1	ug/L
107-06-2	1,2-Dichloroethane	0.5	U	0.48	1	ug/L
79-01-6	Trichloroethene	0.5	U	0.28	1	ug/L
78-87-5	1,2-Dichloropropane	0.5	U	0.46	1	ug/L
75-27-4	Bromodichloromethane	0.5	U	0.36	1	ug/L
108-10-1	4-Methyl-2-Pentanone	2.5	U	2.1	5	ug/L
108-88-3	Toluene	0.5	U	0.37	1	ug/L
10061-02-6	t-1,3-Dichloropropene	0.5	U	0.29	1	ug/L

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	06/13/11
Project:	CTO WE08	Date Received:	06/17/11
Client Sample ID:	FT-GW427-3135	SDG No.:	C2735
Lab Sample ID:	C2735-03	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG035677.D	1		06/20/11	VG062011

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
10061-01-5	cis-1,3-Dichloropropene	0.5	U	0.31	1	ug/L
79-00-5	1,1,2-Trichloroethane	0.5	U	0.38	1	ug/L
591-78-6	2-Hexanone	2.5	U	1.9	5	ug/L
124-48-1	Dibromochloromethane	0.5	U	0.2	1	ug/L
106-93-4	1,2-Dibromoethane	0.5	U	0.41	1	ug/L
127-18-4	Tetrachloroethene	0.5	U	0.27	1	ug/L
108-90-7	Chlorobenzene	0.5	U	0.49	1	ug/L
100-41-4	Ethyl Benzene	0.5	U	0.2	1	ug/L
179601-23-1	m/p-Xylenes	1	U	0.95	2	ug/L
95-47-6	o-Xylene	0.5	U	0.43	1	ug/L
100-42-5	Styrene	0.5	U	0.36	1	ug/L
75-25-2	Bromoform	0.5	U	0.47	1	ug/L
98-82-8	Isopropylbenzene	0.5	U	0.45	1	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	0.5	U	0.31	1	ug/L
541-73-1	1,3-Dichlorobenzene	0.5	U	0.43	1	ug/L
106-46-7	1,4-Dichlorobenzene	0.5	U	0.32	1	ug/L
95-50-1	1,2-Dichlorobenzene	0.5	U	0.45	1	ug/L
96-12-8	1,2-Dibromo-3-Chloropropane	0.5	U	0.46	1	ug/L
120-82-1	1,2,4-Trichlorobenzene	0.5	U	0.2	1	ug/L
87-61-6	1,2,3-Trichlorobenzene	0.5	U	0.2	1	ug/L
123-91-1	1,4-Dioxane	10	U	20	20	ug/L
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	50.5		70 - 120	101%	SPK: 50
1868-53-7	Dibromofluoromethane	50		85 - 115	100%	SPK: 50
2037-26-5	Toluene-d8	42.8		85 - 120	86%	SPK: 50
460-00-4	4-Bromofluorobenzene	42.6		75 - 120	85%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	656148	3.93			
540-36-3	1,4-Difluorobenzene	1156870	4.75			
3114-55-4	Chlorobenzene-d5	781628	9.7			
3855-82-1	1,4-Dichlorobenzene-d4	321657	13.41			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	06/13/11
Project:	CTO WE08	Date Received:	06/17/11
Client Sample ID:	FT-GW427-4145	SDG No.:	C2735
Lab Sample ID:	C2735-04	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG035648.D	1		06/20/11	VG061911

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	0.5	U	0.2	1	ug/L
74-87-3	Chloromethane	0.5	U	0.2	1	ug/L
75-01-4	Vinyl Chloride	0.5	U	0.34	1	ug/L
74-83-9	Bromomethane	0.5	U	0.2	1	ug/L
75-00-3	Chloroethane	0.5	U	0.2	1	ug/L
75-69-4	Trichlorofluoromethane	0.5	U	0.35	1	ug/L
76-13-1	1,1,2-Trichlorotrifluoroethane	0.5	U	0.45	1	ug/L
75-35-4	1,1-Dichloroethene	0.5	U	0.47	1	ug/L
67-64-1	Acetone	2.5	U	0.5	5	ug/L
75-15-0	Carbon Disulfide	0.5	U	0.2	1	ug/L
1634-04-4	Methyl tert-butyl Ether	0.5	U	0.35	1	ug/L
79-20-9	Methyl Acetate	0.5	U	0.2	1	ug/L
75-09-2	Methylene Chloride	0.5	U	0.41	1	ug/L
156-60-5	trans-1,2-Dichloroethene	0.5	U	0.41	1	ug/L
75-34-3	1,1-Dichloroethane	0.5	U	0.36	1	ug/L
110-82-7	Cyclohexane	0.5	U	0.2	1	ug/L
78-93-3	2-Butanone	2.5	U	1.3	5	ug/L
56-23-5	Carbon Tetrachloride	0.5	U	0.2	1	ug/L
156-59-2	cis-1,2-Dichloroethene	0.5	U	0.35	1	ug/L
74-97-5	Bromochloromethane	0.5	U	0.2	1	ug/L
67-66-3	Chloroform	0.5	U	0.34	1	ug/L
71-55-6	1,1,1-Trichloroethane	0.5	U	0.4	1	ug/L
108-87-2	Methylcyclohexane	0.5	U	0.2	1	ug/L
71-43-2	Benzene	0.5	U	0.32	1	ug/L
107-06-2	1,2-Dichloroethane	0.5	U	0.48	1	ug/L
79-01-6	Trichloroethene	0.5	U	0.28	1	ug/L
78-87-5	1,2-Dichloropropane	0.5	U	0.46	1	ug/L
75-27-4	Bromodichloromethane	0.5	U	0.36	1	ug/L
108-10-1	4-Methyl-2-Pentanone	2.5	U	2.1	5	ug/L
108-88-3	Toluene	0.5	U	0.37	1	ug/L
10061-02-6	t-1,3-Dichloropropene	0.5	U	0.29	1	ug/L

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	06/13/11
Project:	CTO WE08	Date Received:	06/17/11
Client Sample ID:	FT-GW427-4145	SDG No.:	C2735
Lab Sample ID:	C2735-04	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG035648.D	1		06/20/11	VG061911

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
10061-01-5	cis-1,3-Dichloropropene	0.5	U	0.31	1	ug/L
79-00-5	1,1,2-Trichloroethane	0.5	U	0.38	1	ug/L
591-78-6	2-Hexanone	2.5	U	1.9	5	ug/L
124-48-1	Dibromochloromethane	0.5	U	0.2	1	ug/L
106-93-4	1,2-Dibromoethane	0.5	U	0.41	1	ug/L
127-18-4	Tetrachloroethene	0.5	U	0.27	1	ug/L
108-90-7	Chlorobenzene	0.5	U	0.49	1	ug/L
100-41-4	Ethyl Benzene	0.5	U	0.2	1	ug/L
179601-23-1	m/p-Xylenes	1	U	0.95	2	ug/L
95-47-6	o-Xylene	0.5	U	0.43	1	ug/L
100-42-5	Styrene	0.5	U	0.36	1	ug/L
75-25-2	Bromoform	0.5	U	0.47	1	ug/L
98-82-8	Isopropylbenzene	0.5	U	0.45	1	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	0.5	U	0.31	1	ug/L
541-73-1	1,3-Dichlorobenzene	0.5	U	0.43	1	ug/L
106-46-7	1,4-Dichlorobenzene	0.5	U	0.32	1	ug/L
95-50-1	1,2-Dichlorobenzene	0.5	U	0.45	1	ug/L
96-12-8	1,2-Dibromo-3-Chloropropane	0.5	U	0.46	1	ug/L
120-82-1	1,2,4-Trichlorobenzene	0.5	U	0.2	1	ug/L
87-61-6	1,2,3-Trichlorobenzene	0.5	U	0.2	1	ug/L
123-91-1	1,4-Dioxane	10	U	20	20	ug/L
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	49.7		70 - 120	99%	SPK: 50
1868-53-7	Dibromofluoromethane	50.8		85 - 115	102%	SPK: 50
2037-26-5	Toluene-d8	42.9		85 - 120	86%	SPK: 50
460-00-4	4-Bromofluorobenzene	44.2		75 - 120	88%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	683475	3.93			
540-36-3	1,4-Difluorobenzene	1205900	4.74			
3114-55-4	Chlorobenzene-d5	834992	9.7			
3855-82-1	1,4-Dichlorobenzene-d4	345761	13.41			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	06/13/11
Project:	CTO WE08	Date Received:	06/17/11
Client Sample ID:	FT-GW427-5155	SDG No.:	C2735
Lab Sample ID:	C2735-06	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG035650.D	1		06/20/11	VG061911

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	0.5	U	0.2	1	ug/L
74-87-3	Chloromethane	0.5	U	0.2	1	ug/L
75-01-4	Vinyl Chloride	0.5	U	0.34	1	ug/L
74-83-9	Bromomethane	0.5	U	0.2	1	ug/L
75-00-3	Chloroethane	0.5	U	0.2	1	ug/L
75-69-4	Trichlorofluoromethane	0.5	U	0.35	1	ug/L
76-13-1	1,1,2-Trichlorotrifluoroethane	0.5	U	0.45	1	ug/L
75-35-4	1,1-Dichloroethene	0.5	U	0.47	1	ug/L
67-64-1	Acetone	2.5	U	0.5	5	ug/L
75-15-0	Carbon Disulfide	0.5	U	0.2	1	ug/L
1634-04-4	Methyl tert-butyl Ether	0.5	U	0.35	1	ug/L
79-20-9	Methyl Acetate	0.5	U	0.2	1	ug/L
75-09-2	Methylene Chloride	0.5	U	0.41	1	ug/L
156-60-5	trans-1,2-Dichloroethene	0.5	U	0.41	1	ug/L
75-34-3	1,1-Dichloroethane	0.5	U	0.36	1	ug/L
110-82-7	Cyclohexane	0.5	U	0.2	1	ug/L
78-93-3	2-Butanone	2.5	U	1.3	5	ug/L
56-23-5	Carbon Tetrachloride	0.5	U	0.2	1	ug/L
156-59-2	cis-1,2-Dichloroethene	0.5	U	0.35	1	ug/L
74-97-5	Bromochloromethane	0.5	U	0.2	1	ug/L
67-66-3	Chloroform	0.5	U	0.34	1	ug/L
71-55-6	1,1,1-Trichloroethane	0.5	U	0.4	1	ug/L
108-87-2	Methylcyclohexane	0.5	U	0.2	1	ug/L
71-43-2	Benzene	0.5	U	0.32	1	ug/L
107-06-2	1,2-Dichloroethane	0.5	U	0.48	1	ug/L
79-01-6	Trichloroethene	0.5	U	0.28	1	ug/L
78-87-5	1,2-Dichloropropane	0.5	U	0.46	1	ug/L
75-27-4	Bromodichloromethane	0.5	U	0.36	1	ug/L
108-10-1	4-Methyl-2-Pentanone	2.5	U	2.1	5	ug/L
108-88-3	Toluene	0.5	U	0.37	1	ug/L
10061-02-6	t-1,3-Dichloropropene	0.5	U	0.29	1	ug/L

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	06/13/11
Project:	CTO WE08	Date Received:	06/17/11
Client Sample ID:	FT-GW427-5155	SDG No.:	C2735
Lab Sample ID:	C2735-06	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG035650.D	1		06/20/11	VG061911

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
10061-01-5	cis-1,3-Dichloropropene	0.5	U	0.31	1	ug/L
79-00-5	1,1,2-Trichloroethane	0.5	U	0.38	1	ug/L
591-78-6	2-Hexanone	2.5	U	1.9	5	ug/L
124-48-1	Dibromochloromethane	0.5	U	0.2	1	ug/L
106-93-4	1,2-Dibromoethane	0.5	U	0.41	1	ug/L
127-18-4	Tetrachloroethene	0.5	U	0.27	1	ug/L
108-90-7	Chlorobenzene	0.5	U	0.49	1	ug/L
100-41-4	Ethyl Benzene	0.5	U	0.2	1	ug/L
179601-23-1	m/p-Xylenes	1	U	0.95	2	ug/L
95-47-6	o-Xylene	0.5	U	0.43	1	ug/L
100-42-5	Styrene	0.5	U	0.36	1	ug/L
75-25-2	Bromoform	0.5	U	0.47	1	ug/L
98-82-8	Isopropylbenzene	0.5	U	0.45	1	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	0.5	U	0.31	1	ug/L
541-73-1	1,3-Dichlorobenzene	0.5	U	0.43	1	ug/L
106-46-7	1,4-Dichlorobenzene	0.5	U	0.32	1	ug/L
95-50-1	1,2-Dichlorobenzene	0.5	U	0.45	1	ug/L
96-12-8	1,2-Dibromo-3-Chloropropane	0.5	U	0.46	1	ug/L
120-82-1	1,2,4-Trichlorobenzene	0.5	U	0.2	1	ug/L
87-61-6	1,2,3-Trichlorobenzene	0.5	U	0.2	1	ug/L
123-91-1	1,4-Dioxane	10	U	20	20	ug/L
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	50.7		70 - 120	101%	SPK: 50
1868-53-7	Dibromofluoromethane	50.6		85 - 115	101%	SPK: 50
2037-26-5	Toluene-d8	43.3		85 - 120	87%	SPK: 50
460-00-4	4-Bromofluorobenzene	42.9		75 - 120	86%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	682249	3.93			
540-36-3	1,4-Difluorobenzene	1206800	4.74			
3114-55-4	Chlorobenzene-d5	824224	9.7			
3855-82-1	1,4-Dichlorobenzene-d4	336655	13.41			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	06/13/11
Project:	CTO WE08	Date Received:	06/17/11
Client Sample ID:	FT-GW427-6165	SDG No.:	C2735
Lab Sample ID:	C2735-07	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG035651.D	1		06/20/11	VG061911

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	0.5	U	0.2	1	ug/L
74-87-3	Chloromethane	0.5	U	0.2	1	ug/L
75-01-4	Vinyl Chloride	0.5	U	0.34	1	ug/L
74-83-9	Bromomethane	0.5	U	0.2	1	ug/L
75-00-3	Chloroethane	0.5	U	0.2	1	ug/L
75-69-4	Trichlorofluoromethane	0.5	U	0.35	1	ug/L
76-13-1	1,1,2-Trichlorotrifluoroethane	0.5	U	0.45	1	ug/L
75-35-4	1,1-Dichloroethene	0.5	U	0.47	1	ug/L
67-64-1	Acetone	2.5	U	0.5	5	ug/L
75-15-0	Carbon Disulfide	0.5	U	0.2	1	ug/L
1634-04-4	Methyl tert-butyl Ether	0.5	U	0.35	1	ug/L
79-20-9	Methyl Acetate	0.5	U	0.2	1	ug/L
75-09-2	Methylene Chloride	0.5	U	0.41	1	ug/L
156-60-5	trans-1,2-Dichloroethene	0.5	U	0.41	1	ug/L
75-34-3	1,1-Dichloroethane	0.5	U	0.36	1	ug/L
110-82-7	Cyclohexane	0.5	U	0.2	1	ug/L
78-93-3	2-Butanone	2.5	U	1.3	5	ug/L
56-23-5	Carbon Tetrachloride	0.5	U	0.2	1	ug/L
156-59-2	cis-1,2-Dichloroethene	0.5	U	0.35	1	ug/L
74-97-5	Bromochloromethane	0.5	U	0.2	1	ug/L
67-66-3	Chloroform	2.4		0.34	1	ug/L
71-55-6	1,1,1-Trichloroethane	0.5	U	0.4	1	ug/L
108-87-2	Methylcyclohexane	0.5	U	0.2	1	ug/L
71-43-2	Benzene	0.5	U	0.32	1	ug/L
107-06-2	1,2-Dichloroethane	0.5	U	0.48	1	ug/L
79-01-6	Trichloroethene	0.5	U	0.28	1	ug/L
78-87-5	1,2-Dichloropropane	0.5	U	0.46	1	ug/L
75-27-4	Bromodichloromethane	0.5	U	0.36	1	ug/L
108-10-1	4-Methyl-2-Pentanone	2.5	U	2.1	5	ug/L
108-88-3	Toluene	0.5	U	0.37	1	ug/L
10061-02-6	t-1,3-Dichloropropene	0.5	U	0.29	1	ug/L

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	06/13/11
Project:	CTO WE08	Date Received:	06/17/11
Client Sample ID:	FT-GW427-6165	SDG No.:	C2735
Lab Sample ID:	C2735-07	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG035651.D	1		06/20/11	VG061911

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
10061-01-5	cis-1,3-Dichloropropene	0.5	U	0.31	1	ug/L
79-00-5	1,1,2-Trichloroethane	0.5	U	0.38	1	ug/L
591-78-6	2-Hexanone	2.5	U	1.9	5	ug/L
124-48-1	Dibromochloromethane	0.5	U	0.2	1	ug/L
106-93-4	1,2-Dibromoethane	0.5	U	0.41	1	ug/L
127-18-4	Tetrachloroethene	0.5	U	0.27	1	ug/L
108-90-7	Chlorobenzene	0.5	U	0.49	1	ug/L
100-41-4	Ethyl Benzene	0.5	U	0.2	1	ug/L
179601-23-1	m/p-Xylenes	1	U	0.95	2	ug/L
95-47-6	o-Xylene	0.5	U	0.43	1	ug/L
100-42-5	Styrene	0.5	U	0.36	1	ug/L
75-25-2	Bromoform	0.5	U	0.47	1	ug/L
98-82-8	Isopropylbenzene	0.5	U	0.45	1	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	0.5	U	0.31	1	ug/L
541-73-1	1,3-Dichlorobenzene	0.5	U	0.43	1	ug/L
106-46-7	1,4-Dichlorobenzene	0.5	U	0.32	1	ug/L
95-50-1	1,2-Dichlorobenzene	0.5	U	0.45	1	ug/L
96-12-8	1,2-Dibromo-3-Chloropropane	0.5	U	0.46	1	ug/L
120-82-1	1,2,4-Trichlorobenzene	0.5	U	0.2	1	ug/L
87-61-6	1,2,3-Trichlorobenzene	0.5	U	0.2	1	ug/L
123-91-1	1,4-Dioxane	10	U	20	20	ug/L
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	52		70 - 120	104%	SPK: 50
1868-53-7	Dibromofluoromethane	52		85 - 115	104%	SPK: 50
2037-26-5	Toluene-d8	45.3		85 - 120	91%	SPK: 50
460-00-4	4-Bromofluorobenzene	45.4		75 - 120	91%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	667132	3.93			
540-36-3	1,4-Difluorobenzene	1135000	4.74			
3114-55-4	Chlorobenzene-d5	811531	9.7			
3855-82-1	1,4-Dichlorobenzene-d4	334423	13.41			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	06/13/11
Project:	CTO WE08	Date Received:	06/17/11
Client Sample ID:	FT-RB01-20110613	SDG No.:	C2735
Lab Sample ID:	C2735-05	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG035649.D	1		06/20/11	VG061911

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	0.5	U	0.2	1	ug/L
74-87-3	Chloromethane	0.5	U	0.2	1	ug/L
75-01-4	Vinyl Chloride	0.5	U	0.34	1	ug/L
74-83-9	Bromomethane	0.5	U	0.2	1	ug/L
75-00-3	Chloroethane	0.5	U	0.2	1	ug/L
75-69-4	Trichlorofluoromethane	0.5	U	0.35	1	ug/L
76-13-1	1,1,2-Trichlorotrifluoroethane	0.5	U	0.45	1	ug/L
75-35-4	1,1-Dichloroethene	0.5	U	0.47	1	ug/L
67-64-1	Acetone	2.5	U	0.5	5	ug/L
75-15-0	Carbon Disulfide	0.5	U	0.2	1	ug/L
1634-04-4	Methyl tert-butyl Ether	0.5	U	0.35	1	ug/L
79-20-9	Methyl Acetate	0.5	U	0.2	1	ug/L
75-09-2	Methylene Chloride	0.5	U	0.41	1	ug/L
156-60-5	trans-1,2-Dichloroethene	0.5	U	0.41	1	ug/L
75-34-3	1,1-Dichloroethane	0.5	U	0.36	1	ug/L
110-82-7	Cyclohexane	0.5	U	0.2	1	ug/L
78-93-3	2-Butanone	2.5	U	1.3	5	ug/L
56-23-5	Carbon Tetrachloride	0.5	U	0.2	1	ug/L
156-59-2	cis-1,2-Dichloroethene	0.5	U	0.35	1	ug/L
74-97-5	Bromochloromethane	0.5	U	0.2	1	ug/L
67-66-3	Chloroform	0.5	U	0.34	1	ug/L
71-55-6	1,1,1-Trichloroethane	0.5	U	0.4	1	ug/L
108-87-2	Methylcyclohexane	0.5	U	0.2	1	ug/L
71-43-2	Benzene	0.5	U	0.32	1	ug/L
107-06-2	1,2-Dichloroethane	0.5	U	0.48	1	ug/L
79-01-6	Trichloroethene	0.5	U	0.28	1	ug/L
78-87-5	1,2-Dichloropropane	0.5	U	0.46	1	ug/L
75-27-4	Bromodichloromethane	0.5	U	0.36	1	ug/L
108-10-1	4-Methyl-2-Pentanone	2.5	U	2.1	5	ug/L
108-88-3	Toluene	0.5	U	0.37	1	ug/L
10061-02-6	t-1,3-Dichloropropene	0.5	U	0.29	1	ug/L

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	06/13/11
Project:	CTO WE08	Date Received:	06/17/11
Client Sample ID:	FT-RB01-20110613	SDG No.:	C2735
Lab Sample ID:	C2735-05	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG035649.D	1		06/20/11	VG061911

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
10061-01-5	cis-1,3-Dichloropropene	0.5	U	0.31	1	ug/L
79-00-5	1,1,2-Trichloroethane	0.5	U	0.38	1	ug/L
591-78-6	2-Hexanone	2.5	U	1.9	5	ug/L
124-48-1	Dibromochloromethane	0.5	U	0.2	1	ug/L
106-93-4	1,2-Dibromoethane	0.5	U	0.41	1	ug/L
127-18-4	Tetrachloroethene	0.5	U	0.27	1	ug/L
108-90-7	Chlorobenzene	0.5	U	0.49	1	ug/L
100-41-4	Ethyl Benzene	0.5	U	0.2	1	ug/L
179601-23-1	m/p-Xylenes	1	U	0.95	2	ug/L
95-47-6	o-Xylene	0.5	U	0.43	1	ug/L
100-42-5	Styrene	0.5	U	0.36	1	ug/L
75-25-2	Bromoform	0.5	U	0.47	1	ug/L
98-82-8	Isopropylbenzene	0.5	U	0.45	1	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	0.5	U	0.31	1	ug/L
541-73-1	1,3-Dichlorobenzene	0.5	U	0.43	1	ug/L
106-46-7	1,4-Dichlorobenzene	0.5	U	0.32	1	ug/L
95-50-1	1,2-Dichlorobenzene	0.5	U	0.45	1	ug/L
96-12-8	1,2-Dibromo-3-Chloropropane	0.5	U	0.46	1	ug/L
120-82-1	1,2,4-Trichlorobenzene	0.5	U	0.2	1	ug/L
87-61-6	1,2,3-Trichlorobenzene	0.5	U	0.2	1	ug/L
123-91-1	1,4-Dioxane	10	U	20	20	ug/L
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	51		70 - 120	102%	SPK: 50
1868-53-7	Dibromofluoromethane	49.9		85 - 115	100%	SPK: 50
2037-26-5	Toluene-d8	46.1		85 - 120	92%	SPK: 50
460-00-4	4-Bromofluorobenzene	42.8		75 - 120	86%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	678401	3.93			
540-36-3	1,4-Difluorobenzene	1226730	4.74			
3114-55-4	Chlorobenzene-d5	861400	9.71			
3855-82-1	1,4-Dichlorobenzene-d4	350297	13.41			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	06/13/11
Project:	CTO WE08	Date Received:	06/17/11
Client Sample ID:	FT-TB01-20110613	SDG No.:	C2735
Lab Sample ID:	C2735-01	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG035638.D	1		06/19/11	VG061911

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	0.5	U	0.2	1	ug/L
74-87-3	Chloromethane	0.5	U	0.2	1	ug/L
75-01-4	Vinyl Chloride	0.5	U	0.34	1	ug/L
74-83-9	Bromomethane	0.5	U	0.2	1	ug/L
75-00-3	Chloroethane	0.5	U	0.2	1	ug/L
75-69-4	Trichlorofluoromethane	0.5	U	0.35	1	ug/L
76-13-1	1,1,2-Trichlorotrifluoroethane	0.5	U	0.45	1	ug/L
75-35-4	1,1-Dichloroethene	0.5	U	0.47	1	ug/L
67-64-1	Acetone	2.5	U	0.5	5	ug/L
75-15-0	Carbon Disulfide	0.5	U	0.2	1	ug/L
1634-04-4	Methyl tert-butyl Ether	0.5	U	0.35	1	ug/L
79-20-9	Methyl Acetate	0.5	U	0.2	1	ug/L
75-09-2	Methylene Chloride	0.5	U	0.41	1	ug/L
156-60-5	trans-1,2-Dichloroethene	0.5	U	0.41	1	ug/L
75-34-3	1,1-Dichloroethane	0.5	U	0.36	1	ug/L
110-82-7	Cyclohexane	0.5	U	0.2	1	ug/L
78-93-3	2-Butanone	2.5	U	1.3	5	ug/L
56-23-5	Carbon Tetrachloride	0.5	U	0.2	1	ug/L
156-59-2	cis-1,2-Dichloroethene	0.5	U	0.35	1	ug/L
74-97-5	Bromochloromethane	0.5	U	0.2	1	ug/L
67-66-3	Chloroform	0.5	U	0.34	1	ug/L
71-55-6	1,1,1-Trichloroethane	0.5	U	0.4	1	ug/L
108-87-2	Methylcyclohexane	0.5	U	0.2	1	ug/L
71-43-2	Benzene	0.5	U	0.32	1	ug/L
107-06-2	1,2-Dichloroethane	0.5	U	0.48	1	ug/L
79-01-6	Trichloroethene	0.5	U	0.28	1	ug/L
78-87-5	1,2-Dichloropropane	0.5	U	0.46	1	ug/L
75-27-4	Bromodichloromethane	0.5	U	0.36	1	ug/L
108-10-1	4-Methyl-2-Pentanone	2.5	U	2.1	5	ug/L
108-88-3	Toluene	0.5	U	0.37	1	ug/L
10061-02-6	t-1,3-Dichloropropene	0.5	U	0.29	1	ug/L

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	06/13/11
Project:	CTO WE08	Date Received:	06/17/11
Client Sample ID:	FT-TB01-20110613	SDG No.:	C2735
Lab Sample ID:	C2735-01	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG035638.D	1		06/19/11	VG061911

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
10061-01-5	cis-1,3-Dichloropropene	0.5	U	0.31	1	ug/L
79-00-5	1,1,2-Trichloroethane	0.5	U	0.38	1	ug/L
591-78-6	2-Hexanone	2.5	U	1.9	5	ug/L
124-48-1	Dibromochloromethane	0.5	U	0.2	1	ug/L
106-93-4	1,2-Dibromoethane	0.5	U	0.41	1	ug/L
127-18-4	Tetrachloroethene	0.5	U	0.27	1	ug/L
108-90-7	Chlorobenzene	0.5	U	0.49	1	ug/L
100-41-4	Ethyl Benzene	0.5	U	0.2	1	ug/L
179601-23-1	m/p-Xylenes	1	U	0.95	2	ug/L
95-47-6	o-Xylene	0.5	U	0.43	1	ug/L
100-42-5	Styrene	0.5	U	0.36	1	ug/L
75-25-2	Bromoform	0.5	U	0.47	1	ug/L
98-82-8	Isopropylbenzene	0.5	U	0.45	1	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	0.5	U	0.31	1	ug/L
541-73-1	1,3-Dichlorobenzene	0.5	U	0.43	1	ug/L
106-46-7	1,4-Dichlorobenzene	0.5	U	0.32	1	ug/L
95-50-1	1,2-Dichlorobenzene	0.5	U	0.45	1	ug/L
96-12-8	1,2-Dibromo-3-Chloropropane	0.5	U	0.46	1	ug/L
120-82-1	1,2,4-Trichlorobenzene	0.5	U	0.2	1	ug/L
87-61-6	1,2,3-Trichlorobenzene	0.5	U	0.2	1	ug/L
123-91-1	1,4-Dioxane	10	U	20	20	ug/L
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	52.1		70 - 120	104%	SPK: 50
1868-53-7	Dibromofluoromethane	49.7		85 - 115	99%	SPK: 50
2037-26-5	Toluene-d8	45.8		85 - 120	92%	SPK: 50
460-00-4	4-Bromofluorobenzene	44.2		75 - 120	88%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	674223	3.92			
540-36-3	1,4-Difluorobenzene	1230180	4.74			
3114-55-4	Chlorobenzene-d5	856901	9.7			
3855-82-1	1,4-Dichlorobenzene-d4	342264	13.4			

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Hit Summary Sheet
SW-846

SDG No.: C2735

Client: Tetra Tech NUS, Inc.

Sample ID	Client ID		Parameter		Concentration	C	RDL	MDL	Units
Client ID:	**FT-DUP01-20110613**								
C2735-11	FT-DUP01-20110613	WATER	Chloroform		0.55	J	1.0	0.34	ug/L
			Total Voc :			**0.55**			
			Total Concentration:			**0.55**			
Client ID:	**FT-GW424-2125**								
C2735-22	FT-GW424-2125	WATER	Methyl Iodide	*	0.62	J	1.0	0.20	ug/L
			Total Tics :			**0.62**			
			Total Concentration:			**0.62**			
Client ID:	**FT-GW425-2125**								
C2735-17	FT-GW425-2125	WATER	Chloromethane		0.77	J	1.0	0.20	ug/L
C2735-17	FT-GW425-2125	WATER	Chloroethane		0.51	J	1.0	0.20	ug/L
			Total Voc :			**1.28**			
C2735-17	FT-GW425-2125	WATER	Naphthalene	*	0.72	J	1.0	0.20	ug/L
C2735-17	FT-GW425-2125	WATER	Methyl Iodide	*	1.60	J	1.0	0.20	ug/L
			Total Tics :			**2.32**			
			Total Concentration:			**3.60**			
Client ID:	**FT-GW425-3135**								
C2735-18	FT-GW425-3135	WATER	Chloromethane		0.61	J	1.0	0.20	ug/L
C2735-18	FT-GW425-3135	WATER	1,1-Dichloroethane		0.90	J	1.0	0.36	ug/L
C2735-18	FT-GW425-3135	WATER	Trichloroethene		1.30		1.0	0.28	ug/L
C2735-18	FT-GW425-3135	WATER	Ethyl Benzene		0.72	J	1.0	0.20	ug/L
C2735-18	FT-GW425-3135	WATER	m/p-Xylenes		1.40	J	2.0	0.95	ug/L
C2735-18	FT-GW425-3135	WATER	o-Xylene		2.70		1.0	0.43	ug/L
			Total Voc :			**7.63**			
C2735-18	FT-GW425-3135	WATER	1,2,4-Trimethylbenzene	*	2.80	J	1.0	0.38	ug/L
C2735-18	FT-GW425-3135	WATER	Naphthalene	*	5.20	J	1.0	0.20	ug/L
C2735-18	FT-GW425-3135	WATER	Methyl Iodide	*	5.10	J	1.0	0.20	ug/L
			Total Tics :			**13.10**			
			Total Concentration:			**20.73**			
Client ID:	**FT-GW425-4145**								
C2735-19	FT-GW425-4145	WATER	Bromoform		2.60		1.0	0.47	ug/L
			Total Voc :			**2.60**			
			Total Concentration:			**2.60**			
Client ID:	**FT-GW425-5155**								
C2735-20	FT-GW425-5155	WATER	Chloroform		1.20		1.0	0.34	ug/L
			Total Voc :			**1.20**			
			Total Concentration:			**1.20**			
Client ID:	**FT-GW425-6165**								
C2735-21	FT-GW425-6165	WATER	Chloroform		1.00		1.0	0.34	ug/L
			Total Voc :			**1.00**			
			Total Concentration:			**1.00**			
Client ID:	**FT-GW426-4145**								

CHEMTECH

Hit Summary Sheet
SW-846

SDG No.: **C2735**

Client: **Tetra Tech NUS, Inc.**

Sample ID	Client ID		Parameter	Concentration	C	RDL	MDL	Units
C2735-10	FT-GW426-4145	WATER	Chloroform	0.55	J	1.0	0.34	ug/L
			Total Voc :		**0.55**			
			Total Concentration:		**0.55**			
Client ID:	**FT-GW426-5155**							
C2735-12	FT-GW426-5155	WATER	Chloroform	0.89	J	1.0	0.34	ug/L
			Total Voc :		**0.89**			
			Total Concentration:		**0.89**			
Client ID:	**FT-GW426-6165**							
C2735-15	FT-GW426-6165	WATER	Chloroform	0.53	J	1.0	0.34	ug/L
			Total Voc :		**0.53**			
			Total Concentration:		**0.53**			
Client ID:	**FT-GW427-6165**							
C2735-07	FT-GW427-6165	WATER	Chloroform	2.40		1.0	0.34	ug/L
			Total Voc :		**2.40**			
			Total Concentration:		**2.40**			
Client ID:	**FT-SB01-20110614**							
C2735-16	FT-SB01-20110614	WATER	Dibromochloromethane	0.64	J	1.0	0.20	ug/L
			Total Voc :		**0.64**			
			Total Concentration:		**0.64**			

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DATA PACKAGE

VOLATILE ORGANICS

PROJECT NAME : CTO WE08

TETRA TECH NUS, INC.

661 Anderson Drive

Pittsburgh, Pennsylvania - 15220-2745

Phone No: 4129218361

ORDER ID : C2736

ATTENTION : David Brayack

ACCREDITED IN ACCORDANCE WITH nelac

LABORATORY ACCREDITATION BUREAU ACCREDITED ISO/IEC 17025

[redacted]

DoD ELAP

CHEMTECH

Table of Contents for C2736

DATA SUMMARY 9

VOLATILES DATA 80

VOLATILES QC DATA 81

VOLATILES SAMPLE DATA 103

VOLATILES CALIBRATION DATA 521

VOLATILES RAW QC DATA 593

VOLATILES MISCELLANEOUSDATA 671

SHIPPING AND RECEIVING DOCUMENTATION 695

END OF ANALYTICAL RESULTS 700

CHEMTECH 284 Sheffield Street, Mountainside, New Jersey 07092 Phone : 908 789 8900 Fax : 908 789 8922

Cover Page

Order ID : C2736

Project ID : CTO WE08

Client : Tetra Tech NUS, Inc.

Lab Sample Number	Client Sample Number
C2736-01	FT-GW424-3135
C2736-02	FT-DUP02-20110615
C2736-03	FT-GW424-4145
C2736-04	FT-GW424-5155
C2736-05	FT-GW424-6165
C2736-06	FT-GW423-6165
C2736-07	FT-GW422-2125
C2736-08	C2736-07MS
C2736-09	C2736-07MSD
C2736-10	FT-GW422-3135
C2736-11	FT-GW422-4145
C2736-12	FT-GW422-5155
C2736-13	FT-DUP03-20110615
C2736-14	FT-GW422-6165
C2736-15	FT-GW421-2125
C2736-16	FT-GW421-3135
C2736-17	FT-GW421-4145
C2736-18	FT-GW421-5155
C2736-19	FT-GW421-6165

I certify that the data package is in compliance with the terms and conditions of the contract,both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hard copy data package has been authorized by the laboratory manager or his designee, as verified by the following signature.

Signature : _____

Kalpana Raythattha
I am approving this document
2011.07.08 15:19:01 -05'00'

NYDOH CERTIFICATION NO - 11376

NJDEP CERTIFICATION NO - 20012

CHEMTECH

CASE NARRATIVE

Tetra Tech NUS, Inc.
Project Name: CTO WE08
Project # N/A
Chemtech Project # C2736
Test Name: VOCMS Group1

A. Number of Samples and Date of Receipt:
19 Water samples were received on 06/17/2011.

B. Parameters
According to the Chain of Custody document, the following analyses were requested: VOCMS Group1. This data package contains results for VOCMS Group1.

C. Analytical Techniques:
The analysis performed on instrument MSVOA_D were done using GC column RTX-VMS which is 20 meters, 0.18 mm id, 1.0 um df, Restek Cat. #49914. The Trap was supplied by SUPELCO, K (VOACARB 3000) , TEKMAR LSC-2000 Concentrator.The analysis of VOCMS Group1 was based on method 8260B.

D. QA/ QC Samples:
The Holding Times were met for all analysis.
The Surrogate recoveries met the acceptable criteria.
The Internal Standards Areas met the acceptable requirements.
The Retention Times were acceptable for all samples.
The MS recoveries met the requirements for all compounds .
The MSD recoveries met the acceptable requirements .
The RPD recoveries met criteria .
The Blank Spike met requirements for all samples .
The Blank Spike Duplicate met requirements for all samples .
The Blank analysis did not indicate the presence of lab contamination.
The Initial Calibration met the requirements .
The Continuous Calibration File ID VD033699.D met the requirements except for Chloroethane and Acetone .The Continuous Calibration File ID VD033723.D met the requirements except for Tetrachloroethene but it is not present in the sample.
The Tuning criteria met requirements.

E. Additional Comments:
Please use %D calculated based on Avg RF and CCRF for all compounds using Average Response Factor when the %RSD value for a compound is <15% for the Initial Calibration curve and use %D calculated based on Amount added and Calculated amount for all compounds using Linear Regression when the %RSD value for a compound is > 15% for the Initial Calibration curve for SW-846 analysis.

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F. Manual Integration Comments:
Please refer to the Manual integration Report included with the Run Logs for information on the manual integrations performed.

I certify that the data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. The laboratory manager or his designee, as verified by the following signature has authorized release of the data contained in this hard copy data package.

Signature____ _____ Kalpana Raythattha
I am approving this document
2011.07.08 15:19:57 -05'00'

I Mildred U Reyes, as the designated Quality Assurance ~~Officer,~~ Supervisor hereby attest that all electronic deliverables have been thoroughly reviewed and are in agreement with the associated hardcopy data. The enclosed electronic files have been reviewed for accuracy (including significant figures), completeness and format. The laboratory will be responsible for any labor time necessary to correct enclosed electronic deliverables that have been found to be in error. I can be reached at (908) 789-8900 if there are any questions or problems with the enclosed electronic deliverables.

Signature: Mildred U Reyes Title: QA/QC Supervisor Date: 7/7/11

CHEMTECH

284 Sheffield Street Mountainside NJ 07092
Tel. 908-789-8900 Fax: 908-789-8922

DATA REPORTING QUALIFIERS- ORGANIC

For reporting results, the following " Result Qualifiers" are used:

Value	If the result is a value greater than or equal to the detection limit, report the value
U	Indicates the compound was analyzed for but was not detected. Report the minimum detection limit for the sample with the U. This is the detection limit attainable for this particular sample based on any concentration or dilution that may have been required.
ND	Indicates the compound was analyzed for but was not detected
J	Indicates an estimated value**.** This flag is used: (1) When estimating a concentration for a tentatively identified compound (library search hits, where a 1:1 response is assumed.) (2) When the mass spectral data indicated the identification, however the result was less than the specified detection limit greater than zero. If the detection limit was 10ug/L, and a concentration of 3ug/L was calculated, report as 3 J.
B	Indicates the analyte was found in the blank as well as the sample.
E	Indicates the analyte 's concentration exceeds the calibrated range of the instrument for that specific analysis.
D	This flag identifies all compounds identified in an analysis at a secondary dilution factor.
P	This flag is used for Pesticide/PCB target analyte when there is >25% difference for detected concentrations between the two GC columns.
N	This flag indicates presumptive evidence of a compound. This is only used for tentatively identified compounds (TICs), where the identification is based on a mass spectral library search. For generic characterization of a TIC, such as chlorinated hydrocarbon, the flag is not used.
A	This flag indicates that a Tentatively Identified Compound is a suspected Aldol-condensation product.

APPENDIX A

QA REVIEW GENERAL DOCUMENTATION

Project #:_____C2736_____

Completed

For thorough review, the report must have the following:

GENERAL:

Are all original paperwork present (chain of custody, record of communication, airbill, sample management lab chronicle, login page) ___✓_____

Check chain-of-custody for proper relinquish/return of samples ___✓_____

Is the chain of custody signed and complete ___✓_____

Check internal chain-of-custody for proper relinquish/return of samples /sample extracts __✓____

Collect information for each project id from server. Were all requirements followed ___✓_____

COVER PAGE:

Do numbers of samples correspond to the number of samples in the Chain of Custody and on login page ___✓_____

Do lab numbers and client Ids on cover page agree with the Chain of Custody ___✓_____

CHAIN OF CUSTODY:

Do requested analyses on Chain of Custody agree with form I results ___✓_____

Do requested analyses on Chain of Custody agree with the log-in page ___✓_____

Were the correct method log-in for analysis according to the Analytical Request and Chain of Custody ___✓_____

Were the samples received within hold time ___✓_____

Were any problems found with the samples at arrival recorded in the Sample Management Laboratory Chronicle ___✓_____

ANALYTICAL:

Was method requirement followed? ___✓_____

Was client requirement followed? ___✓_____

Does the case narrative summarize all QC failure? ___✓_____

All runlogs reviewed for manual integration requirements ___✓_____

All manual calculations and /or hand notations verified ___✓_____

1st Level QA Review Signature:_____ Kalpana Raythattha I am approving this document 2011.07.08 15:20:15 -05'00' Date:_____

2nd Level QA Review Signature:_____ Date:_____

DATA SUMMARY

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	06/16/11
Project:	CTO WE08	Date Received:	06/17/11
Client Sample ID:	FT-GW421-2125	SDG No.:	C2736
Lab Sample ID:	C2736-15	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VD033719.D	1		06/24/11	VD062311

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	0.5	U	0.2	1	ug/L
74-87-3	Chloromethane	0.5	U	0.2	1	ug/L
75-01-4	Vinyl Chloride	0.5	U	0.34	1	ug/L
74-83-9	Bromomethane	0.5	U	0.2	1	ug/L
75-00-3	Chloroethane	0.5	U	0.2	1	ug/L
75-69-4	Trichlorofluoromethane	0.5	U	0.35	1	ug/L
76-13-1	1,1,2-Trichlorotrifluoroethane	0.5	U	0.45	1	ug/L
75-35-4	1,1-Dichloroethene	0.5	U	0.47	1	ug/L
67-64-1	Acetone	2.5	U	0.5	5	ug/L
75-15-0	Carbon Disulfide	0.5	U	0.2	1	ug/L
1634-04-4	Methyl tert-butyl Ether	0.5	U	0.35	1	ug/L
79-20-9	Methyl Acetate	0.5	U	0.2	1	ug/L
75-09-2	Methylene Chloride	0.5	U	0.41	1	ug/L
156-60-5	trans-1,2-Dichloroethene	0.5	U	0.41	1	ug/L
75-34-3	1,1-Dichloroethane	0.5	U	0.36	1	ug/L
110-82-7	Cyclohexane	0.5	U	0.2	1	ug/L
78-93-3	2-Butanone	2.5	U	1.3	5	ug/L
56-23-5	Carbon Tetrachloride	0.5	U	0.2	1	ug/L
156-59-2	cis-1,2-Dichloroethene	0.5	U	0.35	1	ug/L
74-97-5	Bromochloromethane	0.5	U	0.2	1	ug/L
67-66-3	Chloroform	0.5	U	0.34	1	ug/L
71-55-6	1,1,1-Trichloroethane	0.5	U	0.4	1	ug/L
108-87-2	Methylcyclohexane	0.5	U	0.2	1	ug/L
71-43-2	Benzene	0.5	U	0.32	1	ug/L
107-06-2	1,2-Dichloroethane	0.5	U	0.48	1	ug/L
79-01-6	Trichloroethene	0.5	U	0.28	1	ug/L
78-87-5	1,2-Dichloropropane	0.5	U	0.46	1	ug/L
75-27-4	Bromodichloromethane	0.5	U	0.36	1	ug/L
108-10-1	4-Methyl-2-Pentanone	2.5	U	2.1	5	ug/L
108-88-3	Toluene	0.5	U	0.37	1	ug/L
10061-02-6	t-1,3-Dichloropropene	0.5	U	0.29	1	ug/L

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	06/16/11
Project:	CTO WE08	Date Received:	06/17/11
Client Sample ID:	FT-GW421-2125	SDG No.:	C2736
Lab Sample ID:	C2736-15	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VD033719.D	1		06/24/11	VD062311

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
10061-01-5	cis-1,3-Dichloropropene	0.5	U	0.31	1	ug/L
79-00-5	1,1,2-Trichloroethane	0.5	U	0.38	1	ug/L
591-78-6	2-Hexanone	2.5	U	1.9	5	ug/L
124-48-1	Dibromochloromethane	0.5	U	0.2	1	ug/L
106-93-4	1,2-Dibromoethane	0.5	U	0.41	1	ug/L
127-18-4	Tetrachloroethene	0.5	U	0.27	1	ug/L
108-90-7	Chlorobenzene	0.5	U	0.49	1	ug/L
100-41-4	Ethyl Benzene	0.5	U	0.2	1	ug/L
179601-23-1	m/p-Xylenes	1	U	0.95	2	ug/L
95-47-6	o-Xylene	0.5	U	0.43	1	ug/L
100-42-5	Styrene	0.5	U	0.36	1	ug/L
75-25-2	Bromoform	0.5	U	0.47	1	ug/L
98-82-8	Isopropylbenzene	0.5	U	0.45	1	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	0.5	U	0.31	1	ug/L
541-73-1	1,3-Dichlorobenzene	0.5	U	0.43	1	ug/L
106-46-7	1,4-Dichlorobenzene	0.5	U	0.32	1	ug/L
95-50-1	1,2-Dichlorobenzene	0.5	U	0.45	1	ug/L
96-12-8	1,2-Dibromo-3-Chloropropane	0.5	U	0.46	1	ug/L
120-82-1	1,2,4-Trichlorobenzene	0.5	U	0.2	1	ug/L
87-61-6	1,2,3-Trichlorobenzene	0.5	U	0.2	1	ug/L
123-91-1	1,4-Dioxane	10	U	20	20	ug/L
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	50.2		70 - 120	100%	SPK: 50
1868-53-7	Dibromofluoromethane	50.3		85 - 115	101%	SPK: 50
2037-26-5	Toluene-d8	50		85 - 120	100%	SPK: 50
460-00-4	4-Bromofluorobenzene	54.3		75 - 120	109%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	449976	4.18			
540-36-3	1,4-Difluorobenzene	650587	4.81			
3114-55-4	Chlorobenzene-d5	973907	7.8			
3855-82-1	1,4-Dichlorobenzene-d4	495197	9.73			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	06/16/11
Project:	CTO WE08	Date Received:	06/17/11
Client Sample ID:	FT-GW421-3135	SDG No.:	C2736
Lab Sample ID:	C2736-16	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VD033739.D	1		06/24/11	VD062311

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	0.5	U	0.2	1	ug/L
74-87-3	Chloromethane	0.5	U	0.2	1	ug/L
75-01-4	Vinyl Chloride	0.5	U	0.34	1	ug/L
74-83-9	Bromomethane	0.5	U	0.2	1	ug/L
75-00-3	Chloroethane	0.5	U	0.2	1	ug/L
75-69-4	Trichlorofluoromethane	0.5	U	0.35	1	ug/L
76-13-1	1,1,2-Trichlorotrifluoroethane	0.5	U	0.45	1	ug/L
75-35-4	1,1-Dichloroethene	0.5	U	0.47	1	ug/L
67-64-1	Acetone	2.5	U	0.5	5	ug/L
75-15-0	Carbon Disulfide	0.5	U	0.2	1	ug/L
1634-04-4	Methyl tert-butyl Ether	0.5	U	0.35	1	ug/L
79-20-9	Methyl Acetate	0.5	U	0.2	1	ug/L
75-09-2	Methylene Chloride	0.5	U	0.41	1	ug/L
156-60-5	trans-1,2-Dichloroethene	0.5	U	0.41	1	ug/L
75-34-3	1,1-Dichloroethane	3		0.36	1	ug/L
110-82-7	Cyclohexane	0.5	U	0.2	1	ug/L
78-93-3	2-Butanone	2.5	U	1.3	5	ug/L
56-23-5	Carbon Tetrachloride	0.5	U	0.2	1	ug/L
156-59-2	cis-1,2-Dichloroethene	0.5	U	0.35	1	ug/L
74-97-5	Bromochloromethane	0.5	U	0.2	1	ug/L
67-66-3	Chloroform	0.5	U	0.34	1	ug/L
71-55-6	1,1,1-Trichloroethane	1.4		0.4	1	ug/L
108-87-2	Methylcyclohexane	0.5	U	0.2	1	ug/L
71-43-2	Benzene	0.5	U	0.32	1	ug/L
107-06-2	1,2-Dichloroethane	0.5	U	0.48	1	ug/L
79-01-6	Trichloroethene	28		0.28	1	ug/L
78-87-5	1,2-Dichloropropane	0.5	U	0.46	1	ug/L
75-27-4	Bromodichloromethane	0.5	U	0.36	1	ug/L
108-10-1	4-Methyl-2-Pentanone	2.5	U	2.1	5	ug/L
108-88-3	Toluene	0.5	U	0.37	1	ug/L
10061-02-6	t-1,3-Dichloropropene	0.5	U	0.29	1	ug/L

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	06/16/11
Project:	CTO WE08	Date Received:	06/17/11
Client Sample ID:	FT-GW421-3135	SDG No.:	C2736
Lab Sample ID:	C2736-16	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VD033739.D	1		06/24/11	VD062311

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
10061-01-5	cis-1,3-Dichloropropene	0.5	U	0.31	1	ug/L
79-00-5	1,1,2-Trichloroethane	0.5	U	0.38	1	ug/L
591-78-6	2-Hexanone	2.5	U	1.9	5	ug/L
124-48-1	Dibromochloromethane	0.5	U	0.2	1	ug/L
106-93-4	1,2-Dibromoethane	0.5	U	0.41	1	ug/L
127-18-4	Tetrachloroethene	0.5	U	0.27	1	ug/L
108-90-7	Chlorobenzene	0.5	U	0.49	1	ug/L
100-41-4	Ethyl Benzene	0.5	U	0.2	1	ug/L
179601-23-1	m/p-Xylenes	1	U	0.95	2	ug/L
95-47-6	o-Xylene	0.5	U	0.43	1	ug/L
100-42-5	Styrene	0.5	U	0.36	1	ug/L
75-25-2	Bromoform	0.5	U	0.47	1	ug/L
98-82-8	Isopropylbenzene	0.5	U	0.45	1	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	0.5	U	0.31	1	ug/L
541-73-1	1,3-Dichlorobenzene	0.5	U	0.43	1	ug/L
106-46-7	1,4-Dichlorobenzene	0.5	U	0.32	1	ug/L
95-50-1	1,2-Dichlorobenzene	0.5	U	0.45	1	ug/L
96-12-8	1,2-Dibromo-3-Chloropropane	0.5	U	0.46	1	ug/L
120-82-1	1,2,4-Trichlorobenzene	0.5	U	0.2	1	ug/L
87-61-6	1,2,3-Trichlorobenzene	0.5	U	0.2	1	ug/L
123-91-1	1,4-Dioxane	10	U	20	20	ug/L
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	47.5		70 - 120	95%	SPK: 50
1868-53-7	Dibromofluoromethane	47.6		85 - 115	95%	SPK: 50
2037-26-5	Toluene-d8	44.3		85 - 120	89%	SPK: 50
460-00-4	4-Bromofluorobenzene	49.3		75 - 120	99%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	504916	4.18			
540-36-3	1,4-Difluorobenzene	744891	4.81			
3114-55-4	Chlorobenzene-d5	1032940	7.8			
3855-82-1	1,4-Dichlorobenzene-d4	505569	9.72			
TENTATIVE IDENTIFIED COMPOUNDS						

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	06/16/11
Project:	CTO WE08	Date Received:	06/17/11
Client Sample ID:	FT-GW421-3135	SDG No.:	C2736
Lab Sample ID:	C2736-16	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VD033739.D	1		06/24/11	VD062311

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
91-20-3	Naphthalene	0.51	J		11.41	ug/L

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	06/16/11
Project:	CTO WE08	Date Received:	06/17/11
Client Sample ID:	FT-GW421-4145	SDG No.:	C2736
Lab Sample ID:	C2736-17	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VD033740.D	1		06/24/11	VD062311

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	0.5	U	0.2	1	ug/L
74-87-3	Chloromethane	0.5	U	0.2	1	ug/L
75-01-4	Vinyl Chloride	0.5	U	0.34	1	ug/L
74-83-9	Bromomethane	0.5	U	0.2	1	ug/L
75-00-3	Chloroethane	0.5	U	0.2	1	ug/L
75-69-4	Trichlorofluoromethane	0.5	U	0.35	1	ug/L
76-13-1	1,1,2-Trichlorotrifluoroethane	0.5	U	0.45	1	ug/L
75-35-4	1,1-Dichloroethene	0.5	U	0.47	1	ug/L
67-64-1	Acetone	2.5	U	0.5	5	ug/L
75-15-0	Carbon Disulfide	0.5	U	0.2	1	ug/L
1634-04-4	Methyl tert-butyl Ether	0.5	U	0.35	1	ug/L
79-20-9	Methyl Acetate	0.5	U	0.2	1	ug/L
75-09-2	Methylene Chloride	0.5	U	0.41	1	ug/L
156-60-5	trans-1,2-Dichloroethene	0.5	U	0.41	1	ug/L
75-34-3	1,1-Dichloroethane	0.5	U	0.36	1	ug/L
110-82-7	Cyclohexane	0.5	U	0.2	1	ug/L
78-93-3	2-Butanone	2.5	U	1.3	5	ug/L
56-23-5	Carbon Tetrachloride	0.5	U	0.2	1	ug/L
156-59-2	cis-1,2-Dichloroethene	0.5	U	0.35	1	ug/L
74-97-5	Bromochloromethane	0.5	U	0.2	1	ug/L
67-66-3	Chloroform	0.5	U	0.34	1	ug/L
71-55-6	1,1,1-Trichloroethane	0.5	U	0.4	1	ug/L
108-87-2	Methylcyclohexane	0.5	U	0.2	1	ug/L
71-43-2	Benzene	0.5	U	0.32	1	ug/L
107-06-2	1,2-Dichloroethane	0.5	U	0.48	1	ug/L
79-01-6	Trichloroethene	0.5	U	0.28	1	ug/L
78-87-5	1,2-Dichloropropane	0.5	U	0.46	1	ug/L
75-27-4	Bromodichloromethane	0.5	U	0.36	1	ug/L
108-10-1	4-Methyl-2-Pentanone	2.5	U	2.1	5	ug/L
108-88-3	Toluene	0.5	U	0.37	1	ug/L
10061-02-6	t-1,3-Dichloropropene	0.5	U	0.29	1	ug/L

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	06/16/11
Project:	CTO WE08	Date Received:	06/17/11
Client Sample ID:	FT-GW421-4145	SDG No.:	C2736
Lab Sample ID:	C2736-17	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VD033740.D	1		06/24/11	VD062311

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
10061-01-5	cis-1,3-Dichloropropene	0.5	U	0.31	1	ug/L
79-00-5	1,1,2-Trichloroethane	0.5	U	0.38	1	ug/L
591-78-6	2-Hexanone	2.5	U	1.9	5	ug/L
124-48-1	Dibromochloromethane	0.5	U	0.2	1	ug/L
106-93-4	1,2-Dibromoethane	0.5	U	0.41	1	ug/L
127-18-4	Tetrachloroethene	0.5	U	0.27	1	ug/L
108-90-7	Chlorobenzene	0.5	U	0.49	1	ug/L
100-41-4	Ethyl Benzene	0.5	U	0.2	1	ug/L
179601-23-1	m/p-Xylenes	1	U	0.95	2	ug/L
95-47-6	o-Xylene	0.5	U	0.43	1	ug/L
100-42-5	Styrene	0.5	U	0.36	1	ug/L
75-25-2	Bromoform	0.5	U	0.47	1	ug/L
98-82-8	Isopropylbenzene	0.5	U	0.45	1	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	0.5	U	0.31	1	ug/L
541-73-1	1,3-Dichlorobenzene	0.5	U	0.43	1	ug/L
106-46-7	1,4-Dichlorobenzene	0.5	U	0.32	1	ug/L
95-50-1	1,2-Dichlorobenzene	0.5	U	0.45	1	ug/L
96-12-8	1,2-Dibromo-3-Chloropropane	0.5	U	0.46	1	ug/L
120-82-1	1,2,4-Trichlorobenzene	0.5	U	0.2	1	ug/L
87-61-6	1,2,3-Trichlorobenzene	0.5	U	0.2	1	ug/L
123-91-1	1,4-Dioxane	10	U	20	20	ug/L
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	47.2		70 - 120	94%	SPK: 50
1868-53-7	Dibromofluoromethane	49.9		85 - 115	100%	SPK: 50
2037-26-5	Toluene-d8	45.5		85 - 120	91%	SPK: 50
460-00-4	4-Bromofluorobenzene	52		75 - 120	104%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	501697	4.18			
540-36-3	1,4-Difluorobenzene	713330	4.8			
3114-55-4	Chlorobenzene-d5	1024410	7.79			
3855-82-1	1,4-Dichlorobenzene-d4	520893	9.72			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	06/16/11
Project:	CTO WE08	Date Received:	06/17/11
Client Sample ID:	FT-GW421-5155	SDG No.:	C2736
Lab Sample ID:	C2736-18	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VD033741.D	1		06/24/11	VD062311

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	0.5	U	0.2	1	ug/L
74-87-3	Chloromethane	0.5	U	0.2	1	ug/L
75-01-4	Vinyl Chloride	0.5	U	0.34	1	ug/L
74-83-9	Bromomethane	0.5	U	0.2	1	ug/L
75-00-3	Chloroethane	0.5	U	0.2	1	ug/L
75-69-4	Trichlorofluoromethane	0.5	U	0.35	1	ug/L
76-13-1	1,1,2-Trichlorotrifluoroethane	0.5	U	0.45	1	ug/L
75-35-4	1,1-Dichloroethene	0.5	U	0.47	1	ug/L
67-64-1	Acetone	2.5	U	0.5	5	ug/L
75-15-0	Carbon Disulfide	0.5	U	0.2	1	ug/L
1634-04-4	Methyl tert-butyl Ether	0.5	U	0.35	1	ug/L
79-20-9	Methyl Acetate	0.5	U	0.2	1	ug/L
75-09-2	Methylene Chloride	0.5	U	0.41	1	ug/L
156-60-5	trans-1,2-Dichloroethene	0.5	U	0.41	1	ug/L
75-34-3	1,1-Dichloroethane	0.5	U	0.36	1	ug/L
110-82-7	Cyclohexane	0.5	U	0.2	1	ug/L
78-93-3	2-Butanone	2.5	U	1.3	5	ug/L
56-23-5	Carbon Tetrachloride	0.5	U	0.2	1	ug/L
156-59-2	cis-1,2-Dichloroethene	0.5	U	0.35	1	ug/L
74-97-5	Bromochloromethane	0.5	U	0.2	1	ug/L
67-66-3	Chloroform	0.5	U	0.34	1	ug/L
71-55-6	1,1,1-Trichloroethane	0.5	U	0.4	1	ug/L
108-87-2	Methylcyclohexane	0.5	U	0.2	1	ug/L
71-43-2	Benzene	0.5	U	0.32	1	ug/L
107-06-2	1,2-Dichloroethane	0.5	U	0.48	1	ug/L
79-01-6	Trichloroethene	0.5	U	0.28	1	ug/L
78-87-5	1,2-Dichloropropane	0.5	U	0.46	1	ug/L
75-27-4	Bromodichloromethane	0.5	U	0.36	1	ug/L
108-10-1	4-Methyl-2-Pentanone	2.5	U	2.1	5	ug/L
108-88-3	Toluene	0.5	U	0.37	1	ug/L
10061-02-6	t-1,3-Dichloropropene	0.5	U	0.29	1	ug/L

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	06/16/11
Project:	CTO WE08	Date Received:	06/17/11
Client Sample ID:	FT-GW421-5155	SDG No.:	C2736
Lab Sample ID:	C2736-18	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VD033741.D	1		06/24/11	VD062311

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
10061-01-5	cis-1,3-Dichloropropene	0.5	U	0.31	1	ug/L
79-00-5	1,1,2-Trichloroethane	0.5	U	0.38	1	ug/L
591-78-6	2-Hexanone	2.5	U	1.9	5	ug/L
124-48-1	Dibromochloromethane	0.5	U	0.2	1	ug/L
106-93-4	1,2-Dibromoethane	0.5	U	0.41	1	ug/L
127-18-4	Tetrachloroethene	0.5	U	0.27	1	ug/L
108-90-7	Chlorobenzene	0.5	U	0.49	1	ug/L
100-41-4	Ethyl Benzene	0.5	U	0.2	1	ug/L
179601-23-1	m/p-Xylenes	1	U	0.95	2	ug/L
95-47-6	o-Xylene	0.5	U	0.43	1	ug/L
100-42-5	Styrene	0.5	U	0.36	1	ug/L
75-25-2	Bromoform	0.5	U	0.47	1	ug/L
98-82-8	Isopropylbenzene	0.5	U	0.45	1	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	0.5	U	0.31	1	ug/L
541-73-1	1,3-Dichlorobenzene	0.5	U	0.43	1	ug/L
106-46-7	1,4-Dichlorobenzene	0.5	U	0.32	1	ug/L
95-50-1	1,2-Dichlorobenzene	0.5	U	0.45	1	ug/L
96-12-8	1,2-Dibromo-3-Chloropropane	0.5	U	0.46	1	ug/L
120-82-1	1,2,4-Trichlorobenzene	0.5	U	0.2	1	ug/L
87-61-6	1,2,3-Trichlorobenzene	0.5	U	0.2	1	ug/L
123-91-1	1,4-Dioxane	10	U	20	20	ug/L
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	50.2		70 - 120	100%	SPK: 50
1868-53-7	Dibromofluoromethane	52.3		85 - 115	105%	SPK: 50
2037-26-5	Toluene-d8	47.4		85 - 120	95%	SPK: 50
460-00-4	4-Bromofluorobenzene	53.2		75 - 120	106%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	474454	4.18			
540-36-3	1,4-Difluorobenzene	676963	4.81			
3114-55-4	Chlorobenzene-d5	966862	7.8			
3855-82-1	1,4-Dichlorobenzene-d4	492027	9.72			
TENTATIVE IDENTIFIED COMPOUNDS						

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	06/16/11
Project:	CTO WE08	Date Received:	06/17/11
Client Sample ID:	FT-GW421-5155	SDG No.:	C2736
Lab Sample ID:	C2736-18	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VD033741.D	1		06/24/11	VD062311

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
	unknown1.14	9.4	J		1.14	ug/L

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	06/16/11
Project:	CTO WE08	Date Received:	06/17/11
Client Sample ID:	FT-GW421-6165	SDG No.:	C2736
Lab Sample ID:	C2736-19	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VD033742.D	1		06/24/11	VD062311

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	0.5	U	0.2	1	ug/L
74-87-3	Chloromethane	0.5	U	0.2	1	ug/L
75-01-4	Vinyl Chloride	0.5	U	0.34	1	ug/L
74-83-9	Bromomethane	0.5	U	0.2	1	ug/L
75-00-3	Chloroethane	0.5	U	0.2	1	ug/L
75-69-4	Trichlorofluoromethane	0.5	U	0.35	1	ug/L
76-13-1	1,1,2-Trichlorotrifluoroethane	0.5	U	0.45	1	ug/L
75-35-4	1,1-Dichloroethene	0.5	U	0.47	1	ug/L
67-64-1	Acetone	2.5	U	0.5	5	ug/L
75-15-0	Carbon Disulfide	0.5	U	0.2	1	ug/L
1634-04-4	Methyl tert-butyl Ether	0.5	U	0.35	1	ug/L
79-20-9	Methyl Acetate	0.5	U	0.2	1	ug/L
75-09-2	Methylene Chloride	0.5	U	0.41	1	ug/L
156-60-5	trans-1,2-Dichloroethene	0.5	U	0.41	1	ug/L
75-34-3	1,1-Dichloroethane	0.5	U	0.36	1	ug/L
110-82-7	Cyclohexane	0.5	U	0.2	1	ug/L
78-93-3	2-Butanone	2.5	U	1.3	5	ug/L
56-23-5	Carbon Tetrachloride	0.5	U	0.2	1	ug/L
156-59-2	cis-1,2-Dichloroethene	0.5	U	0.35	1	ug/L
74-97-5	Bromochloromethane	0.5	U	0.2	1	ug/L
67-66-3	Chloroform	0.65	J	0.34	1	ug/L
71-55-6	1,1,1-Trichloroethane	0.5	U	0.4	1	ug/L
108-87-2	Methylcyclohexane	0.5	U	0.2	1	ug/L
71-43-2	Benzene	0.5	U	0.32	1	ug/L
107-06-2	1,2-Dichloroethane	0.5	U	0.48	1	ug/L
79-01-6	Trichloroethene	0.5	U	0.28	1	ug/L
78-87-5	1,2-Dichloropropane	0.5	U	0.46	1	ug/L
75-27-4	Bromodichloromethane	0.5	U	0.36	1	ug/L
108-10-1	4-Methyl-2-Pentanone	2.5	U	2.1	5	ug/L
108-88-3	Toluene	0.5	U	0.37	1	ug/L
10061-02-6	t-1,3-Dichloropropene	0.5	U	0.29	1	ug/L

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	06/16/11
Project:	CTO WE08	Date Received:	06/17/11
Client Sample ID:	FT-GW421-6165	SDG No.:	C2736
Lab Sample ID:	C2736-19	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VD033742.D	1		06/24/11	VD062311

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
10061-01-5	cis-1,3-Dichloropropene	0.5	U	0.31	1	ug/L
79-00-5	1,1,2-Trichloroethane	0.5	U	0.38	1	ug/L
591-78-6	2-Hexanone	2.5	U	1.9	5	ug/L
124-48-1	Dibromochloromethane	0.5	U	0.2	1	ug/L
106-93-4	1,2-Dibromoethane	0.5	U	0.41	1	ug/L
127-18-4	Tetrachloroethene	0.5	U	0.27	1	ug/L
108-90-7	Chlorobenzene	0.5	U	0.49	1	ug/L
100-41-4	Ethyl Benzene	0.5	U	0.2	1	ug/L
179601-23-1	m/p-Xylenes	1	U	0.95	2	ug/L
95-47-6	o-Xylene	0.5	U	0.43	1	ug/L
100-42-5	Styrene	0.5	U	0.36	1	ug/L
75-25-2	Bromoform	0.5	U	0.47	1	ug/L
98-82-8	Isopropylbenzene	0.5	U	0.45	1	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	0.5	U	0.31	1	ug/L
541-73-1	1,3-Dichlorobenzene	0.5	U	0.43	1	ug/L
106-46-7	1,4-Dichlorobenzene	0.5	U	0.32	1	ug/L
95-50-1	1,2-Dichlorobenzene	0.5	U	0.45	1	ug/L
96-12-8	1,2-Dibromo-3-Chloropropane	0.5	U	0.46	1	ug/L
120-82-1	1,2,4-Trichlorobenzene	0.5	U	0.2	1	ug/L
87-61-6	1,2,3-Trichlorobenzene	0.5	U	0.2	1	ug/L
123-91-1	1,4-Dioxane	10	U	20	20	ug/L
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	49.1		70 - 120	98%	SPK: 50
1868-53-7	Dibromofluoromethane	52.7		85 - 115	105%	SPK: 50
2037-26-5	Toluene-d8	42.3		85 - 120	85%	SPK: 50
460-00-4	4-Bromofluorobenzene	52		75 - 120	104%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	467403	4.17			
540-36-3	1,4-Difluorobenzene	659841	4.81			
3114-55-4	Chlorobenzene-d5	980884	7.8			
3855-82-1	1,4-Dichlorobenzene-d4	487911	9.73			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	06/15/11
Project:	CTO WE08	Date Received:	06/17/11
Client Sample ID:	FT-GW422-2125	SDG No.:	C2736
Lab Sample ID:	C2736-07	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VD033707.D	1		06/23/11	VD062311

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	0.5	U	0.2	1	ug/L
74-87-3	Chloromethane	0.5	U	0.2	1	ug/L
75-01-4	Vinyl Chloride	0.5	U	0.34	1	ug/L
74-83-9	Bromomethane	0.5	U	0.2	1	ug/L
75-00-3	Chloroethane	0.5	U	0.2	1	ug/L
75-69-4	Trichlorofluoromethane	0.5	U	0.35	1	ug/L
76-13-1	1,1,2-Trichlorotrifluoroethane	0.5	U	0.45	1	ug/L
75-35-4	1,1-Dichloroethene	0.5	U	0.47	1	ug/L
67-64-1	Acetone	2.5	U	0.5	5	ug/L
75-15-0	Carbon Disulfide	0.5	U	0.2	1	ug/L
1634-04-4	Methyl tert-butyl Ether	0.5	U	0.35	1	ug/L
79-20-9	Methyl Acetate	0.5	U	0.2	1	ug/L
75-09-2	Methylene Chloride	0.5	U	0.41	1	ug/L
156-60-5	trans-1,2-Dichloroethene	0.5	U	0.41	1	ug/L
75-34-3	1,1-Dichloroethane	0.5	U	0.36	1	ug/L
110-82-7	Cyclohexane	0.5	U	0.2	1	ug/L
78-93-3	2-Butanone	2.5	U	1.3	5	ug/L
56-23-5	Carbon Tetrachloride	0.5	U	0.2	1	ug/L
156-59-2	cis-1,2-Dichloroethene	0.5	U	0.35	1	ug/L
74-97-5	Bromochloromethane	0.5	U	0.2	1	ug/L
67-66-3	Chloroform	0.5	U	0.34	1	ug/L
71-55-6	1,1,1-Trichloroethane	0.5	U	0.4	1	ug/L
108-87-2	Methylcyclohexane	0.5	U	0.2	1	ug/L
71-43-2	Benzene	0.5	U	0.32	1	ug/L
107-06-2	1,2-Dichloroethane	0.5	U	0.48	1	ug/L
79-01-6	Trichloroethene	0.5	U	0.28	1	ug/L
78-87-5	1,2-Dichloropropane	0.5	U	0.46	1	ug/L
75-27-4	Bromodichloromethane	0.5	U	0.36	1	ug/L
108-10-1	4-Methyl-2-Pentanone	2.5	U	2.1	5	ug/L
108-88-3	Toluene	0.5	U	0.37	1	ug/L
10061-02-6	t-1,3-Dichloropropene	0.5	U	0.29	1	ug/L

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	06/15/11
Project:	CTO WE08	Date Received:	06/17/11
Client Sample ID:	FT-GW422-2125	SDG No.:	C2736
Lab Sample ID:	C2736-07	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VD033707.D	1		06/23/11	VD062311

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
10061-01-5	cis-1,3-Dichloropropene	0.5	U	0.31	1	ug/L
79-00-5	1,1,2-Trichloroethane	0.5	U	0.38	1	ug/L
591-78-6	2-Hexanone	2.5	U	1.9	5	ug/L
124-48-1	Dibromochloromethane	0.5	U	0.2	1	ug/L
106-93-4	1,2-Dibromoethane	0.5	U	0.41	1	ug/L
127-18-4	Tetrachloroethene	0.5	U	0.27	1	ug/L
108-90-7	Chlorobenzene	0.5	U	0.49	1	ug/L
100-41-4	Ethyl Benzene	0.5	U	0.2	1	ug/L
179601-23-1	m/p-Xylenes	1	U	0.95	2	ug/L
95-47-6	o-Xylene	0.5	U	0.43	1	ug/L
100-42-5	Styrene	0.5	U	0.36	1	ug/L
75-25-2	Bromoform	0.5	U	0.47	1	ug/L
98-82-8	Isopropylbenzene	0.5	U	0.45	1	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	0.5	U	0.31	1	ug/L
541-73-1	1,3-Dichlorobenzene	0.5	U	0.43	1	ug/L
106-46-7	1,4-Dichlorobenzene	0.5	U	0.32	1	ug/L
95-50-1	1,2-Dichlorobenzene	0.5	U	0.45	1	ug/L
96-12-8	1,2-Dibromo-3-Chloropropane	0.5	U	0.46	1	ug/L
120-82-1	1,2,4-Trichlorobenzene	0.5	U	0.2	1	ug/L
87-61-6	1,2,3-Trichlorobenzene	0.5	U	0.2	1	ug/L
123-91-1	1,4-Dioxane	10	U	20	20	ug/L
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	51.3		70 - 120	103%	SPK: 50
1868-53-7	Dibromofluoromethane	51.3		85 - 115	103%	SPK: 50
2037-26-5	Toluene-d8	49		85 - 120	98%	SPK: 50
460-00-4	4-Bromofluorobenzene	54.1		75 - 120	108%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	451875	4.18			
540-36-3	1,4-Difluorobenzene	672242	4.8			
3114-55-4	Chlorobenzene-d5	968981	7.8			
3855-82-1	1,4-Dichlorobenzene-d4	499639	9.72			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	06/15/11
Project:	CTO WE08	Date Received:	06/17/11
Client Sample ID:	FT-GW422-3135	SDG No.:	C2736
Lab Sample ID:	C2736-10	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VD033714.D	1		06/23/11	VD062311

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	0.5	U	0.2	1	ug/L
74-87-3	Chloromethane	0.5	U	0.2	1	ug/L
75-01-4	Vinyl Chloride	0.5	U	0.34	1	ug/L
74-83-9	Bromomethane	0.5	U	0.2	1	ug/L
75-00-3	Chloroethane	0.5	U	0.2	1	ug/L
75-69-4	Trichlorofluoromethane	0.5	U	0.35	1	ug/L
76-13-1	1,1,2-Trichlorotrifluoroethane	0.5	U	0.45	1	ug/L
75-35-4	1,1-Dichloroethene	0.5	U	0.47	1	ug/L
67-64-1	Acetone	2.5	U	0.5	5	ug/L
75-15-0	Carbon Disulfide	0.5	U	0.2	1	ug/L
1634-04-4	Methyl tert-butyl Ether	0.5	U	0.35	1	ug/L
79-20-9	Methyl Acetate	0.5	U	0.2	1	ug/L
75-09-2	Methylene Chloride	0.5	U	0.41	1	ug/L
156-60-5	trans-1,2-Dichloroethene	0.5	U	0.41	1	ug/L
75-34-3	1,1-Dichloroethane	0.5	U	0.36	1	ug/L
110-82-7	Cyclohexane	0.5	U	0.2	1	ug/L
78-93-3	2-Butanone	2.5	U	1.3	5	ug/L
56-23-5	Carbon Tetrachloride	0.5	U	0.2	1	ug/L
156-59-2	cis-1,2-Dichloroethene	0.5	U	0.35	1	ug/L
74-97-5	Bromochloromethane	0.5	U	0.2	1	ug/L
67-66-3	Chloroform	0.5	U	0.34	1	ug/L
71-55-6	1,1,1-Trichloroethane	0.5	U	0.4	1	ug/L
108-87-2	Methylcyclohexane	0.5	U	0.2	1	ug/L
71-43-2	Benzene	0.5	U	0.32	1	ug/L
107-06-2	1,2-Dichloroethane	0.5	U	0.48	1	ug/L
79-01-6	Trichloroethene	6.2		0.28	1	ug/L
78-87-5	1,2-Dichloropropane	0.5	U	0.46	1	ug/L
75-27-4	Bromodichloromethane	0.5	U	0.36	1	ug/L
108-10-1	4-Methyl-2-Pentanone	2.5	U	2.1	5	ug/L
108-88-3	Toluene	0.5	U	0.37	1	ug/L
10061-02-6	t-1,3-Dichloropropene	0.5	U	0.29	1	ug/L

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	06/15/11
Project:	CTO WE08	Date Received:	06/17/11
Client Sample ID:	FT-GW422-3135	SDG No.:	C2736
Lab Sample ID:	C2736-10	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VD033714.D	1		06/23/11	VD062311

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
10061-01-5	cis-1,3-Dichloropropene	0.5	U	0.31	1	ug/L
79-00-5	1,1,2-Trichloroethane	0.5	U	0.38	1	ug/L
591-78-6	2-Hexanone	2.5	U	1.9	5	ug/L
124-48-1	Dibromochloromethane	0.5	U	0.2	1	ug/L
106-93-4	1,2-Dibromoethane	0.5	U	0.41	1	ug/L
127-18-4	Tetrachloroethene	0.69	J	0.27	1	ug/L
108-90-7	Chlorobenzene	0.5	U	0.49	1	ug/L
100-41-4	Ethyl Benzene	0.5	U	0.2	1	ug/L
179601-23-1	m/p-Xylenes	1	U	0.95	2	ug/L
95-47-6	o-Xylene	0.5	U	0.43	1	ug/L
100-42-5	Styrene	0.5	U	0.36	1	ug/L
75-25-2	Bromoform	0.5	U	0.47	1	ug/L
98-82-8	Isopropylbenzene	0.5	U	0.45	1	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	0.5	U	0.31	1	ug/L
541-73-1	1,3-Dichlorobenzene	0.5	U	0.43	1	ug/L
106-46-7	1,4-Dichlorobenzene	0.5	U	0.32	1	ug/L
95-50-1	1,2-Dichlorobenzene	0.5	U	0.45	1	ug/L
96-12-8	1,2-Dibromo-3-Chloropropane	0.5	U	0.46	1	ug/L
120-82-1	1,2,4-Trichlorobenzene	0.5	U	0.2	1	ug/L
87-61-6	1,2,3-Trichlorobenzene	0.5	U	0.2	1	ug/L
123-91-1	1,4-Dioxane	10	U	20	20	ug/L
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	48.2		70 - 120	96%	SPK: 50
1868-53-7	Dibromofluoromethane	50.4		85 - 115	101%	SPK: 50
2037-26-5	Toluene-d8	48.6		85 - 120	97%	SPK: 50
460-00-4	4-Bromofluorobenzene	54.9		75 - 120	110%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	447150	4.18			
540-36-3	1,4-Difluorobenzene	639641	4.81			
3114-55-4	Chlorobenzene-d5	945798	7.79			
3855-82-1	1,4-Dichlorobenzene-d4	479771	9.72			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	06/15/11
Project:	CTO WE08	Date Received:	06/17/11
Client Sample ID:	FT-GW422-4145	SDG No.:	C2736
Lab Sample ID:	C2736-11	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VD033715.D	1		06/23/11	VD062311

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	0.5	U	0.2	1	ug/L
74-87-3	Chloromethane	0.5	U	0.2	1	ug/L
75-01-4	Vinyl Chloride	0.5	U	0.34	1	ug/L
74-83-9	Bromomethane	0.5	U	0.2	1	ug/L
75-00-3	Chloroethane	0.5	U	0.2	1	ug/L
75-69-4	Trichlorofluoromethane	0.5	U	0.35	1	ug/L
76-13-1	1,1,2-Trichlorotrifluoroethane	0.5	U	0.45	1	ug/L
75-35-4	1,1-Dichloroethene	0.5	U	0.47	1	ug/L
67-64-1	Acetone	2.5	U	0.5	5	ug/L
75-15-0	Carbon Disulfide	0.5	U	0.2	1	ug/L
1634-04-4	Methyl tert-butyl Ether	0.5	U	0.35	1	ug/L
79-20-9	Methyl Acetate	0.5	U	0.2	1	ug/L
75-09-2	Methylene Chloride	0.5	U	0.41	1	ug/L
156-60-5	trans-1,2-Dichloroethene	0.5	U	0.41	1	ug/L
75-34-3	1,1-Dichloroethane	0.5	U	0.36	1	ug/L
110-82-7	Cyclohexane	0.5	U	0.2	1	ug/L
78-93-3	2-Butanone	2.5	U	1.3	5	ug/L
56-23-5	Carbon Tetrachloride	0.5	U	0.2	1	ug/L
156-59-2	cis-1,2-Dichloroethene	0.5	U	0.35	1	ug/L
74-97-5	Bromochloromethane	0.5	U	0.2	1	ug/L
67-66-3	Chloroform	0.5	U	0.34	1	ug/L
71-55-6	1,1,1-Trichloroethane	0.5	U	0.4	1	ug/L
108-87-2	Methylcyclohexane	0.5	U	0.2	1	ug/L
71-43-2	Benzene	0.5	U	0.32	1	ug/L
107-06-2	1,2-Dichloroethane	0.5	U	0.48	1	ug/L
79-01-6	Trichloroethene	0.5	U	0.28	1	ug/L
78-87-5	1,2-Dichloropropane	0.5	U	0.46	1	ug/L
75-27-4	Bromodichloromethane	0.5	U	0.36	1	ug/L
108-10-1	4-Methyl-2-Pentanone	2.5	U	2.1	5	ug/L
108-88-3	Toluene	0.5	U	0.37	1	ug/L
10061-02-6	t-1,3-Dichloropropene	0.5	U	0.29	1	ug/L

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	06/15/11
Project:	CTO WE08	Date Received:	06/17/11
Client Sample ID:	FT-GW422-4145	SDG No.:	C2736
Lab Sample ID:	C2736-11	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VD033715.D	1		06/23/11	VD062311

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
10061-01-5	cis-1,3-Dichloropropene	0.5	U	0.31	1	ug/L
79-00-5	1,1,2-Trichloroethane	0.5	U	0.38	1	ug/L
591-78-6	2-Hexanone	2.5	U	1.9	5	ug/L
124-48-1	Dibromochloromethane	0.5	U	0.2	1	ug/L
106-93-4	1,2-Dibromoethane	0.5	U	0.41	1	ug/L
127-18-4	Tetrachloroethene	0.5	U	0.27	1	ug/L
108-90-7	Chlorobenzene	0.5	U	0.49	1	ug/L
100-41-4	Ethyl Benzene	0.5	U	0.2	1	ug/L
179601-23-1	m/p-Xylenes	1	U	0.95	2	ug/L
95-47-6	o-Xylene	0.5	U	0.43	1	ug/L
100-42-5	Styrene	0.5	U	0.36	1	ug/L
75-25-2	Bromoform	0.5	U	0.47	1	ug/L
98-82-8	Isopropylbenzene	0.5	U	0.45	1	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	0.5	U	0.31	1	ug/L
541-73-1	1,3-Dichlorobenzene	0.5	U	0.43	1	ug/L
106-46-7	1,4-Dichlorobenzene	0.5	U	0.32	1	ug/L
95-50-1	1,2-Dichlorobenzene	0.5	U	0.45	1	ug/L
96-12-8	1,2-Dibromo-3-Chloropropane	0.5	U	0.46	1	ug/L
120-82-1	1,2,4-Trichlorobenzene	0.5	U	0.2	1	ug/L
87-61-6	1,2,3-Trichlorobenzene	0.5	U	0.2	1	ug/L
123-91-1	1,4-Dioxane	10	U	20	20	ug/L
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	49		70 - 120	98%	SPK: 50
1868-53-7	Dibromofluoromethane	54.6		85 - 115	109%	SPK: 50
2037-26-5	Toluene-d8	48.5		85 - 120	97%	SPK: 50
460-00-4	4-Bromofluorobenzene	59		75 - 120	118%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	451233	4.17			
540-36-3	1,4-Difluorobenzene	622863	4.8			
3114-55-4	Chlorobenzene-d5	964226	7.79			
3855-82-1	1,4-Dichlorobenzene-d4	484872	9.73			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	06/15/11
Project:	CTO WE08	Date Received:	06/17/11
Client Sample ID:	FT-GW422-5155	SDG No.:	C2736
Lab Sample ID:	C2736-12	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VD033716.D	1		06/23/11	VD062311

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	0.5	U	0.2	1	ug/L
74-87-3	Chloromethane	0.5	U	0.2	1	ug/L
75-01-4	Vinyl Chloride	0.5	U	0.34	1	ug/L
74-83-9	Bromomethane	0.5	U	0.2	1	ug/L
75-00-3	Chloroethane	0.5	U	0.2	1	ug/L
75-69-4	Trichlorofluoromethane	0.5	U	0.35	1	ug/L
76-13-1	1,1,2-Trichlorotrifluoroethane	0.5	U	0.45	1	ug/L
75-35-4	1,1-Dichloroethene	0.5	U	0.47	1	ug/L
67-64-1	Acetone	2.5	U	0.5	5	ug/L
75-15-0	Carbon Disulfide	0.5	U	0.2	1	ug/L
1634-04-4	Methyl tert-butyl Ether	0.5	U	0.35	1	ug/L
79-20-9	Methyl Acetate	0.5	U	0.2	1	ug/L
75-09-2	Methylene Chloride	0.5	U	0.41	1	ug/L
156-60-5	trans-1,2-Dichloroethene	0.5	U	0.41	1	ug/L
75-34-3	1,1-Dichloroethane	0.5	U	0.36	1	ug/L
110-82-7	Cyclohexane	0.5	U	0.2	1	ug/L
78-93-3	2-Butanone	2.5	U	1.3	5	ug/L
56-23-5	Carbon Tetrachloride	0.5	U	0.2	1	ug/L
156-59-2	cis-1,2-Dichloroethene	0.5	U	0.35	1	ug/L
74-97-5	Bromochloromethane	0.5	U	0.2	1	ug/L
67-66-3	Chloroform	0.5	U	0.34	1	ug/L
71-55-6	1,1,1-Trichloroethane	0.5	U	0.4	1	ug/L
108-87-2	Methylcyclohexane	0.5	U	0.2	1	ug/L
71-43-2	Benzene	0.5	U	0.32	1	ug/L
107-06-2	1,2-Dichloroethane	0.5	U	0.48	1	ug/L
79-01-6	Trichloroethene	0.5	U	0.28	1	ug/L
78-87-5	1,2-Dichloropropane	0.5	U	0.46	1	ug/L
75-27-4	Bromodichloromethane	0.5	U	0.36	1	ug/L
108-10-1	4-Methyl-2-Pentanone	2.5	U	2.1	5	ug/L
108-88-3	Toluene	0.5	U	0.37	1	ug/L
10061-02-6	t-1,3-Dichloropropene	0.5	U	0.29	1	ug/L

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	06/15/11
Project:	CTO WE08	Date Received:	06/17/11
Client Sample ID:	FT-GW422-5155	SDG No.:	C2736
Lab Sample ID:	C2736-12	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VD033716.D	1		06/23/11	VD062311

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
10061-01-5	cis-1,3-Dichloropropene	0.5	U	0.31	1	ug/L
79-00-5	1,1,2-Trichloroethane	0.5	U	0.38	1	ug/L
591-78-6	2-Hexanone	2.5	U	1.9	5	ug/L
124-48-1	Dibromochloromethane	0.5	U	0.2	1	ug/L
106-93-4	1,2-Dibromoethane	0.5	U	0.41	1	ug/L
127-18-4	Tetrachloroethene	0.5	U	0.27	1	ug/L
108-90-7	Chlorobenzene	0.5	U	0.49	1	ug/L
100-41-4	Ethyl Benzene	0.5	U	0.2	1	ug/L
179601-23-1	m/p-Xylenes	1	U	0.95	2	ug/L
95-47-6	o-Xylene	0.5	U	0.43	1	ug/L
100-42-5	Styrene	0.5	U	0.36	1	ug/L
75-25-2	Bromoform	0.5	U	0.47	1	ug/L
98-82-8	Isopropylbenzene	0.5	U	0.45	1	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	0.5	U	0.31	1	ug/L
541-73-1	1,3-Dichlorobenzene	0.5	U	0.43	1	ug/L
106-46-7	1,4-Dichlorobenzene	0.5	U	0.32	1	ug/L
95-50-1	1,2-Dichlorobenzene	0.5	U	0.45	1	ug/L
96-12-8	1,2-Dibromo-3-Chloropropane	0.5	U	0.46	1	ug/L
120-82-1	1,2,4-Trichlorobenzene	0.5	U	0.2	1	ug/L
87-61-6	1,2,3-Trichlorobenzene	0.5	U	0.2	1	ug/L
123-91-1	1,4-Dioxane	10	U	20	20	ug/L
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	48.4		70 - 120	97%	SPK: 50
1868-53-7	Dibromofluoromethane	52		85 - 115	104%	SPK: 50
2037-26-5	Toluene-d8	46.6		85 - 120	93%	SPK: 50
460-00-4	4-Bromofluorobenzene	53.5		75 - 120	107%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	443445	4.17			
540-36-3	1,4-Difluorobenzene	616948	4.8			
3114-55-4	Chlorobenzene-d5	914051	7.8			
3855-82-1	1,4-Dichlorobenzene-d4	470897	9.73			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	06/15/11
Project:	CTO WE08	Date Received:	06/17/11
Client Sample ID:	FT-DUP03-20110615	SDG No.:	C2736
Lab Sample ID:	C2736-13	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VD033717.D	1		06/23/11	VD062311

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	0.5	U	0.2	1	ug/L
74-87-3	Chloromethane	0.5	U	0.2	1	ug/L
75-01-4	Vinyl Chloride	0.5	U	0.34	1	ug/L
74-83-9	Bromomethane	0.5	U	0.2	1	ug/L
75-00-3	Chloroethane	0.5	U	0.2	1	ug/L
75-69-4	Trichlorofluoromethane	0.5	U	0.35	1	ug/L
76-13-1	1,1,2-Trichlorotrifluoroethane	0.5	U	0.45	1	ug/L
75-35-4	1,1-Dichloroethene	0.5	U	0.47	1	ug/L
67-64-1	Acetone	2.5	U	0.5	5	ug/L
75-15-0	Carbon Disulfide	0.5	U	0.2	1	ug/L
1634-04-4	Methyl tert-butyl Ether	0.5	U	0.35	1	ug/L
79-20-9	Methyl Acetate	0.5	U	0.2	1	ug/L
75-09-2	Methylene Chloride	0.5	U	0.41	1	ug/L
156-60-5	trans-1,2-Dichloroethene	0.5	U	0.41	1	ug/L
75-34-3	1,1-Dichloroethane	0.5	U	0.36	1	ug/L
110-82-7	Cyclohexane	0.5	U	0.2	1	ug/L
78-93-3	2-Butanone	2.5	U	1.3	5	ug/L
56-23-5	Carbon Tetrachloride	0.5	U	0.2	1	ug/L
156-59-2	cis-1,2-Dichloroethene	0.5	U	0.35	1	ug/L
74-97-5	Bromochloromethane	0.5	U	0.2	1	ug/L
67-66-3	Chloroform	0.5	U	0.34	1	ug/L
71-55-6	1,1,1-Trichloroethane	0.5	U	0.4	1	ug/L
108-87-2	Methylcyclohexane	0.5	U	0.2	1	ug/L
71-43-2	Benzene	0.5	U	0.32	1	ug/L
107-06-2	1,2-Dichloroethane	0.5	U	0.48	1	ug/L
79-01-6	Trichloroethene	0.5	U	0.28	1	ug/L
78-87-5	1,2-Dichloropropane	0.5	U	0.46	1	ug/L
75-27-4	Bromodichloromethane	0.5	U	0.36	1	ug/L
108-10-1	4-Methyl-2-Pentanone	2.5	U	2.1	5	ug/L
108-88-3	Toluene	0.5	U	0.37	1	ug/L
10061-02-6	t-1,3-Dichloropropene	0.5	U	0.29	1	ug/L

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	06/15/11
Project:	CTO WE08	Date Received:	06/17/11
Client Sample ID:	FT-DUP03-20110615	SDG No.:	C2736
Lab Sample ID:	C2736-13	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VD033717.D	1		06/23/11	VD062311

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
10061-01-5	cis-1,3-Dichloropropene	0.5	U	0.31	1	ug/L
79-00-5	1,1,2-Trichloroethane	0.5	U	0.38	1	ug/L
591-78-6	2-Hexanone	2.5	U	1.9	5	ug/L
124-48-1	Dibromochloromethane	0.5	U	0.2	1	ug/L
106-93-4	1,2-Dibromoethane	0.5	U	0.41	1	ug/L
127-18-4	Tetrachloroethene	0.5	U	0.27	1	ug/L
108-90-7	Chlorobenzene	0.5	U	0.49	1	ug/L
100-41-4	Ethyl Benzene	0.5	U	0.2	1	ug/L
179601-23-1	m/p-Xylenes	1	U	0.95	2	ug/L
95-47-6	o-Xylene	0.5	U	0.43	1	ug/L
100-42-5	Styrene	0.5	U	0.36	1	ug/L
75-25-2	Bromoform	0.5	U	0.47	1	ug/L
98-82-8	Isopropylbenzene	0.5	U	0.45	1	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	0.5	U	0.31	1	ug/L
541-73-1	1,3-Dichlorobenzene	0.5	U	0.43	1	ug/L
106-46-7	1,4-Dichlorobenzene	0.5	U	0.32	1	ug/L
95-50-1	1,2-Dichlorobenzene	0.5	U	0.45	1	ug/L
96-12-8	1,2-Dibromo-3-Chloropropane	0.5	U	0.46	1	ug/L
120-82-1	1,2,4-Trichlorobenzene	0.5	U	0.2	1	ug/L
87-61-6	1,2,3-Trichlorobenzene	0.5	U	0.2	1	ug/L
123-91-1	1,4-Dioxane	10	U	20	20	ug/L
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	50		70 - 120	100%	SPK: 50
1868-53-7	Dibromofluoromethane	52.4		85 - 115	105%	SPK: 50
2037-26-5	Toluene-d8	44.2		85 - 120	88%	SPK: 50
460-00-4	4-Bromofluorobenzene	56.2		75 - 120	112%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	432450	4.17			
540-36-3	1,4-Difluorobenzene	619962	4.8			
3114-55-4	Chlorobenzene-d5	921551	7.8			
3855-82-1	1,4-Dichlorobenzene-d4	458798	9.73			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	06/15/11
Project:	CTO WE08	Date Received:	06/17/11
Client Sample ID:	FT-GW422-6165	SDG No.:	C2736
Lab Sample ID:	C2736-14	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VD033718.D	1		06/23/11	VD062311

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	0.5	U	0.2	1	ug/L
74-87-3	Chloromethane	0.5	U	0.2	1	ug/L
75-01-4	Vinyl Chloride	0.5	U	0.34	1	ug/L
74-83-9	Bromomethane	0.5	U	0.2	1	ug/L
75-00-3	Chloroethane	0.5	U	0.2	1	ug/L
75-69-4	Trichlorofluoromethane	0.5	U	0.35	1	ug/L
76-13-1	1,1,2-Trichlorotrifluoroethane	0.5	U	0.45	1	ug/L
75-35-4	1,1-Dichloroethene	0.5	U	0.47	1	ug/L
67-64-1	Acetone	2.5	U	0.5	5	ug/L
75-15-0	Carbon Disulfide	0.5	U	0.2	1	ug/L
1634-04-4	Methyl tert-butyl Ether	0.5	U	0.35	1	ug/L
79-20-9	Methyl Acetate	0.5	U	0.2	1	ug/L
75-09-2	Methylene Chloride	0.5	U	0.41	1	ug/L
156-60-5	trans-1,2-Dichloroethene	0.5	U	0.41	1	ug/L
75-34-3	1,1-Dichloroethane	0.5	U	0.36	1	ug/L
110-82-7	Cyclohexane	0.5	U	0.2	1	ug/L
78-93-3	2-Butanone	2.5	U	1.3	5	ug/L
56-23-5	Carbon Tetrachloride	0.5	U	0.2	1	ug/L
156-59-2	cis-1,2-Dichloroethene	0.5	U	0.35	1	ug/L
74-97-5	Bromochloromethane	0.5	U	0.2	1	ug/L
67-66-3	Chloroform	0.62	J	0.34	1	ug/L
71-55-6	1,1,1-Trichloroethane	0.5	U	0.4	1	ug/L
108-87-2	Methylcyclohexane	0.5	U	0.2	1	ug/L
71-43-2	Benzene	0.5	U	0.32	1	ug/L
107-06-2	1,2-Dichloroethane	0.5	U	0.48	1	ug/L
79-01-6	Trichloroethene	0.5	U	0.28	1	ug/L
78-87-5	1,2-Dichloropropane	0.5	U	0.46	1	ug/L
75-27-4	Bromodichloromethane	0.5	U	0.36	1	ug/L
108-10-1	4-Methyl-2-Pentanone	2.5	U	2.1	5	ug/L
108-88-3	Toluene	0.5	U	0.37	1	ug/L
10061-02-6	t-1,3-Dichloropropene	0.5	U	0.29	1	ug/L

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	06/15/11
Project:	CTO WE08	Date Received:	06/17/11
Client Sample ID:	FT-GW422-6165	SDG No.:	C2736
Lab Sample ID:	C2736-14	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VD033718.D	1		06/23/11	VD062311

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
10061-01-5	cis-1,3-Dichloropropene	0.5	U	0.31	1	ug/L
79-00-5	1,1,2-Trichloroethane	0.5	U	0.38	1	ug/L
591-78-6	2-Hexanone	2.5	U	1.9	5	ug/L
124-48-1	Dibromochloromethane	0.5	U	0.2	1	ug/L
106-93-4	1,2-Dibromoethane	0.5	U	0.41	1	ug/L
127-18-4	Tetrachloroethene	0.5	U	0.27	1	ug/L
108-90-7	Chlorobenzene	0.5	U	0.49	1	ug/L
100-41-4	Ethyl Benzene	0.5	U	0.2	1	ug/L
179601-23-1	m/p-Xylenes	1	U	0.95	2	ug/L
95-47-6	o-Xylene	0.5	U	0.43	1	ug/L
100-42-5	Styrene	0.5	U	0.36	1	ug/L
75-25-2	Bromoform	0.5	U	0.47	1	ug/L
98-82-8	Isopropylbenzene	0.5	U	0.45	1	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	0.5	U	0.31	1	ug/L
541-73-1	1,3-Dichlorobenzene	0.5	U	0.43	1	ug/L
106-46-7	1,4-Dichlorobenzene	0.5	U	0.32	1	ug/L
95-50-1	1,2-Dichlorobenzene	0.5	U	0.45	1	ug/L
96-12-8	1,2-Dibromo-3-Chloropropane	0.5	U	0.46	1	ug/L
120-82-1	1,2,4-Trichlorobenzene	0.5	U	0.2	1	ug/L
87-61-6	1,2,3-Trichlorobenzene	0.5	U	0.2	1	ug/L
123-91-1	1,4-Dioxane	10	U	20	20	ug/L
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	50.1		70 - 120	100%	SPK: 50
1868-53-7	Dibromofluoromethane	53.1		85 - 115	106%	SPK: 50
2037-26-5	Toluene-d8	43.3		85 - 120	87%	SPK: 50
460-00-4	4-Bromofluorobenzene	53.8		75 - 120	108%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	445327	4.18			
540-36-3	1,4-Difluorobenzene	629529	4.81			
3114-55-4	Chlorobenzene-d5	944261	7.8			
3855-82-1	1,4-Dichlorobenzene-d4	473411	9.72			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	06/15/11
Project:	CTO WE08	Date Received:	06/17/11
Client Sample ID:	FT-GW423-6165	SDG No.:	C2736
Lab Sample ID:	C2736-06	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VD033713.D	1		06/23/11	VD062311

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	0.5	U	0.2	1	ug/L
74-87-3	Chloromethane	0.5	U	0.2	1	ug/L
75-01-4	Vinyl Chloride	0.5	U	0.34	1	ug/L
74-83-9	Bromomethane	0.5	U	0.2	1	ug/L
75-00-3	Chloroethane	0.5	U	0.2	1	ug/L
75-69-4	Trichlorofluoromethane	0.5	U	0.35	1	ug/L
76-13-1	1,1,2-Trichlorotrifluoroethane	0.5	U	0.45	1	ug/L
75-35-4	1,1-Dichloroethene	0.5	U	0.47	1	ug/L
67-64-1	Acetone	2.5	U	0.5	5	ug/L
75-15-0	Carbon Disulfide	0.5	U	0.2	1	ug/L
1634-04-4	Methyl tert-butyl Ether	0.5	U	0.35	1	ug/L
79-20-9	Methyl Acetate	0.5	U	0.2	1	ug/L
75-09-2	Methylene Chloride	0.5	U	0.41	1	ug/L
156-60-5	trans-1,2-Dichloroethene	0.5	U	0.41	1	ug/L
75-34-3	1,1-Dichloroethane	0.5	U	0.36	1	ug/L
110-82-7	Cyclohexane	0.5	U	0.2	1	ug/L
78-93-3	2-Butanone	2.5	U	1.3	5	ug/L
56-23-5	Carbon Tetrachloride	0.5	U	0.2	1	ug/L
156-59-2	cis-1,2-Dichloroethene	0.5	U	0.35	1	ug/L
74-97-5	Bromochloromethane	0.5	U	0.2	1	ug/L
67-66-3	Chloroform	0.58	J	0.34	1	ug/L
71-55-6	1,1,1-Trichloroethane	0.5	U	0.4	1	ug/L
108-87-2	Methylcyclohexane	0.5	U	0.2	1	ug/L
71-43-2	Benzene	0.5	U	0.32	1	ug/L
107-06-2	1,2-Dichloroethane	0.5	U	0.48	1	ug/L
79-01-6	Trichloroethene	0.5	U	0.28	1	ug/L
78-87-5	1,2-Dichloropropane	0.5	U	0.46	1	ug/L
75-27-4	Bromodichloromethane	0.5	U	0.36	1	ug/L
108-10-1	4-Methyl-2-Pentanone	2.5	U	2.1	5	ug/L
108-88-3	Toluene	0.5	U	0.37	1	ug/L
10061-02-6	t-1,3-Dichloropropene	0.5	U	0.29	1	ug/L

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	06/15/11
Project:	CTO WE08	Date Received:	06/17/11
Client Sample ID:	FT-GW423-6165	SDG No.:	C2736
Lab Sample ID:	C2736-06	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VD033713.D	1		06/23/11	VD062311

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
10061-01-5	cis-1,3-Dichloropropene	0.5	U	0.31	1	ug/L
79-00-5	1,1,2-Trichloroethane	0.5	U	0.38	1	ug/L
591-78-6	2-Hexanone	2.5	U	1.9	5	ug/L
124-48-1	Dibromochloromethane	0.5	U	0.2	1	ug/L
106-93-4	1,2-Dibromoethane	0.5	U	0.41	1	ug/L
127-18-4	Tetrachloroethene	0.5	U	0.27	1	ug/L
108-90-7	Chlorobenzene	0.5	U	0.49	1	ug/L
100-41-4	Ethyl Benzene	0.5	U	0.2	1	ug/L
179601-23-1	m/p-Xylenes	1	U	0.95	2	ug/L
95-47-6	o-Xylene	0.5	U	0.43	1	ug/L
100-42-5	Styrene	0.5	U	0.36	1	ug/L
75-25-2	Bromoform	0.5	U	0.47	1	ug/L
98-82-8	Isopropylbenzene	0.5	U	0.45	1	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	0.5	U	0.31	1	ug/L
541-73-1	1,3-Dichlorobenzene	0.5	U	0.43	1	ug/L
106-46-7	1,4-Dichlorobenzene	0.5	U	0.32	1	ug/L
95-50-1	1,2-Dichlorobenzene	0.5	U	0.45	1	ug/L
96-12-8	1,2-Dibromo-3-Chloropropane	0.5	U	0.46	1	ug/L
120-82-1	1,2,4-Trichlorobenzene	0.5	U	0.2	1	ug/L
87-61-6	1,2,3-Trichlorobenzene	0.5	U	0.2	1	ug/L
123-91-1	1,4-Dioxane	10	U	20	20	ug/L
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	51.8		70 - 120	104%	SPK: 50
1868-53-7	Dibromofluoromethane	50.4		85 - 115	101%	SPK: 50
2037-26-5	Toluene-d8	47.1		85 - 120	94%	SPK: 50
460-00-4	4-Bromofluorobenzene	53.4		75 - 120	107%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	429521	4.18			
540-36-3	1,4-Difluorobenzene	645614	4.81			
3114-55-4	Chlorobenzene-d5	943015	7.8			
3855-82-1	1,4-Dichlorobenzene-d4	482260	9.73			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	06/15/11
Project:	CTO WE08	Date Received:	06/17/11
Client Sample ID:	FT-GW424-3135	SDG No.:	C2736
Lab Sample ID:	C2736-01	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VD033708.D	1		06/23/11	VD062311

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	0.5	U	0.2	1	ug/L
74-87-3	Chloromethane	0.5	U	0.2	1	ug/L
75-01-4	Vinyl Chloride	0.5	U	0.34	1	ug/L
74-83-9	Bromomethane	0.5	U	0.2	1	ug/L
75-00-3	Chloroethane	0.5	U	0.2	1	ug/L
75-69-4	Trichlorofluoromethane	0.5	U	0.35	1	ug/L
76-13-1	1,1,2-Trichlorotrifluoroethane	0.5	U	0.45	1	ug/L
75-35-4	1,1-Dichloroethene	0.5	U	0.47	1	ug/L
67-64-1	Acetone	2.5	U	0.5	5	ug/L
75-15-0	Carbon Disulfide	0.5	U	0.2	1	ug/L
1634-04-4	Methyl tert-butyl Ether	0.5	U	0.35	1	ug/L
79-20-9	Methyl Acetate	0.5	U	0.2	1	ug/L
75-09-2	Methylene Chloride	0.5	U	0.41	1	ug/L
156-60-5	trans-1,2-Dichloroethene	0.5	U	0.41	1	ug/L
75-34-3	1,1-Dichloroethane	0.5	U	0.36	1	ug/L
110-82-7	Cyclohexane	0.5	U	0.2	1	ug/L
78-93-3	2-Butanone	2.5	U	1.3	5	ug/L
56-23-5	Carbon Tetrachloride	0.5	U	0.2	1	ug/L
156-59-2	cis-1,2-Dichloroethene	0.5	U	0.35	1	ug/L
74-97-5	Bromochloromethane	0.5	U	0.2	1	ug/L
67-66-3	Chloroform	0.5	U	0.34	1	ug/L
71-55-6	1,1,1-Trichloroethane	0.5	U	0.4	1	ug/L
108-87-2	Methylcyclohexane	0.5	U	0.2	1	ug/L
71-43-2	Benzene	0.5	U	0.32	1	ug/L
107-06-2	1,2-Dichloroethane	0.5	U	0.48	1	ug/L
79-01-6	Trichloroethene	0.5	U	0.28	1	ug/L
78-87-5	1,2-Dichloropropane	0.5	U	0.46	1	ug/L
75-27-4	Bromodichloromethane	0.5	U	0.36	1	ug/L
108-10-1	4-Methyl-2-Pentanone	2.5	U	2.1	5	ug/L
108-88-3	Toluene	0.5	U	0.37	1	ug/L
10061-02-6	t-1,3-Dichloropropene	0.5	U	0.29	1	ug/L

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	06/15/11
Project:	CTO WE08	Date Received:	06/17/11
Client Sample ID:	FT-GW424-3135	SDG No.:	C2736
Lab Sample ID:	C2736-01	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VD033708.D	1		06/23/11	VD062311

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
10061-01-5	cis-1,3-Dichloropropene	0.5	U	0.31	1	ug/L
79-00-5	1,1,2-Trichloroethane	0.5	U	0.38	1	ug/L
591-78-6	2-Hexanone	2.5	U	1.9	5	ug/L
124-48-1	Dibromochloromethane	0.5	U	0.2	1	ug/L
106-93-4	1,2-Dibromoethane	0.5	U	0.41	1	ug/L
127-18-4	Tetrachloroethene	0.5	U	0.27	1	ug/L
108-90-7	Chlorobenzene	0.5	U	0.49	1	ug/L
100-41-4	Ethyl Benzene	0.5	U	0.2	1	ug/L
179601-23-1	m/p-Xylenes	1	U	0.95	2	ug/L
95-47-6	o-Xylene	0.5	U	0.43	1	ug/L
100-42-5	Styrene	0.5	U	0.36	1	ug/L
75-25-2	Bromoform	0.5	U	0.47	1	ug/L
98-82-8	Isopropylbenzene	0.5	U	0.45	1	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	0.5	U	0.31	1	ug/L
541-73-1	1,3-Dichlorobenzene	0.5	U	0.43	1	ug/L
106-46-7	1,4-Dichlorobenzene	0.5	U	0.32	1	ug/L
95-50-1	1,2-Dichlorobenzene	0.5	U	0.45	1	ug/L
96-12-8	1,2-Dibromo-3-Chloropropane	0.5	U	0.46	1	ug/L
120-82-1	1,2,4-Trichlorobenzene	0.5	U	0.2	1	ug/L
87-61-6	1,2,3-Trichlorobenzene	0.5	U	0.2	1	ug/L
123-91-1	1,4-Dioxane	10	U	20	20	ug/L
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	50.2		70 - 120	100%	SPK: 50
1868-53-7	Dibromofluoromethane	50.8		85 - 115	102%	SPK: 50
2037-26-5	Toluene-d8	44.8		85 - 120	90%	SPK: 50
460-00-4	4-Bromofluorobenzene	51.5		75 - 120	103%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	457250	4.18			
540-36-3	1,4-Difluorobenzene	672476	4.8			
3114-55-4	Chlorobenzene-d5	942620	7.8			
3855-82-1	1,4-Dichlorobenzene-d4	495221	9.72			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	06/15/11
Project:	CTO WE08	Date Received:	06/17/11
Client Sample ID:	FT-DUP02-20110615	SDG No.:	C2736
Lab Sample ID:	C2736-02	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VD033709.D	1		06/23/11	VD062311

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	0.5	U	0.2	1	ug/L
74-87-3	Chloromethane	0.5	U	0.2	1	ug/L
75-01-4	Vinyl Chloride	0.5	U	0.34	1	ug/L
74-83-9	Bromomethane	0.5	U	0.2	1	ug/L
75-00-3	Chloroethane	0.5	U	0.2	1	ug/L
75-69-4	Trichlorofluoromethane	0.5	U	0.35	1	ug/L
76-13-1	1,1,2-Trichlorotrifluoroethane	0.5	U	0.45	1	ug/L
75-35-4	1,1-Dichloroethene	0.5	U	0.47	1	ug/L
67-64-1	Acetone	2.5	U	0.5	5	ug/L
75-15-0	Carbon Disulfide	0.5	U	0.2	1	ug/L
1634-04-4	Methyl tert-butyl Ether	0.5	U	0.35	1	ug/L
79-20-9	Methyl Acetate	0.5	U	0.2	1	ug/L
75-09-2	Methylene Chloride	0.5	U	0.41	1	ug/L
156-60-5	trans-1,2-Dichloroethene	0.5	U	0.41	1	ug/L
75-34-3	1,1-Dichloroethane	0.5	U	0.36	1	ug/L
110-82-7	Cyclohexane	0.5	U	0.2	1	ug/L
78-93-3	2-Butanone	2.5	U	1.3	5	ug/L
56-23-5	Carbon Tetrachloride	0.5	U	0.2	1	ug/L
156-59-2	cis-1,2-Dichloroethene	0.5	U	0.35	1	ug/L
74-97-5	Bromochloromethane	0.5	U	0.2	1	ug/L
67-66-3	Chloroform	0.5	U	0.34	1	ug/L
71-55-6	1,1,1-Trichloroethane	0.5	U	0.4	1	ug/L
108-87-2	Methylcyclohexane	0.5	U	0.2	1	ug/L
71-43-2	Benzene	0.5	U	0.32	1	ug/L
107-06-2	1,2-Dichloroethane	0.5	U	0.48	1	ug/L
79-01-6	Trichloroethene	0.5	U	0.28	1	ug/L
78-87-5	1,2-Dichloropropane	0.5	U	0.46	1	ug/L
75-27-4	Bromodichloromethane	0.5	U	0.36	1	ug/L
108-10-1	4-Methyl-2-Pentanone	2.5	U	2.1	5	ug/L
108-88-3	Toluene	0.5	U	0.37	1	ug/L
10061-02-6	t-1,3-Dichloropropene	0.5	U	0.29	1	ug/L

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	06/15/11
Project:	CTO WE08	Date Received:	06/17/11
Client Sample ID:	FT-DUP02-20110615	SDG No.:	C2736
Lab Sample ID:	C2736-02	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VD033709.D	1		06/23/11	VD062311

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
10061-01-5	cis-1,3-Dichloropropene	0.5	U	0.31	1	ug/L
79-00-5	1,1,2-Trichloroethane	0.5	U	0.38	1	ug/L
591-78-6	2-Hexanone	2.5	U	1.9	5	ug/L
124-48-1	Dibromochloromethane	0.5	U	0.2	1	ug/L
106-93-4	1,2-Dibromoethane	0.5	U	0.41	1	ug/L
127-18-4	Tetrachloroethene	0.5	U	0.27	1	ug/L
108-90-7	Chlorobenzene	0.5	U	0.49	1	ug/L
100-41-4	Ethyl Benzene	0.5	U	0.2	1	ug/L
179601-23-1	m/p-Xylenes	1	U	0.95	2	ug/L
95-47-6	o-Xylene	0.5	U	0.43	1	ug/L
100-42-5	Styrene	0.5	U	0.36	1	ug/L
75-25-2	Bromoform	0.5	U	0.47	1	ug/L
98-82-8	Isopropylbenzene	0.5	U	0.45	1	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	0.5	U	0.31	1	ug/L
541-73-1	1,3-Dichlorobenzene	0.5	U	0.43	1	ug/L
106-46-7	1,4-Dichlorobenzene	0.5	U	0.32	1	ug/L
95-50-1	1,2-Dichlorobenzene	0.5	U	0.45	1	ug/L
96-12-8	1,2-Dibromo-3-Chloropropane	0.5	U	0.46	1	ug/L
120-82-1	1,2,4-Trichlorobenzene	0.5	U	0.2	1	ug/L
87-61-6	1,2,3-Trichlorobenzene	0.5	U	0.2	1	ug/L
123-91-1	1,4-Dioxane	10	U	20	20	ug/L
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	49.6		70 - 120	99%	SPK: 50
1868-53-7	Dibromofluoromethane	51.2		85 - 115	102%	SPK: 50
2037-26-5	Toluene-d8	45.3		85 - 120	91%	SPK: 50
460-00-4	4-Bromofluorobenzene	54.3		75 - 120	109%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	451517	4.18			
540-36-3	1,4-Difluorobenzene	663757	4.8			
3114-55-4	Chlorobenzene-d5	973218	7.8			
3855-82-1	1,4-Dichlorobenzene-d4	496302	9.73			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	06/15/11
Project:	CTO WE08	Date Received:	06/17/11
Client Sample ID:	FT-GW424-4145	SDG No.:	C2736
Lab Sample ID:	C2736-03	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VD033710.D	1		06/23/11	VD062311

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	0.5	U	0.2	1	ug/L
74-87-3	Chloromethane	0.5	U	0.2	1	ug/L
75-01-4	Vinyl Chloride	0.5	U	0.34	1	ug/L
74-83-9	Bromomethane	0.5	U	0.2	1	ug/L
75-00-3	Chloroethane	0.5	U	0.2	1	ug/L
75-69-4	Trichlorofluoromethane	0.5	U	0.35	1	ug/L
76-13-1	1,1,2-Trichlorotrifluoroethane	0.5	U	0.45	1	ug/L
75-35-4	1,1-Dichloroethene	0.5	U	0.47	1	ug/L
67-64-1	Acetone	2.5	U	0.5	5	ug/L
75-15-0	Carbon Disulfide	0.5	U	0.2	1	ug/L
1634-04-4	Methyl tert-butyl Ether	0.5	U	0.35	1	ug/L
79-20-9	Methyl Acetate	0.5	U	0.2	1	ug/L
75-09-2	Methylene Chloride	0.5	U	0.41	1	ug/L
156-60-5	trans-1,2-Dichloroethene	0.5	U	0.41	1	ug/L
75-34-3	1,1-Dichloroethane	0.5	U	0.36	1	ug/L
110-82-7	Cyclohexane	0.5	U	0.2	1	ug/L
78-93-3	2-Butanone	2.5	U	1.3	5	ug/L
56-23-5	Carbon Tetrachloride	0.5	U	0.2	1	ug/L
156-59-2	cis-1,2-Dichloroethene	0.5	U	0.35	1	ug/L
74-97-5	Bromochloromethane	0.5	U	0.2	1	ug/L
67-66-3	Chloroform	0.5	U	0.34	1	ug/L
71-55-6	1,1,1-Trichloroethane	0.5	U	0.4	1	ug/L
108-87-2	Methylcyclohexane	0.5	U	0.2	1	ug/L
71-43-2	Benzene	0.5	U	0.32	1	ug/L
107-06-2	1,2-Dichloroethane	0.5	U	0.48	1	ug/L
79-01-6	Trichloroethene	0.5	U	0.28	1	ug/L
78-87-5	1,2-Dichloropropane	0.5	U	0.46	1	ug/L
75-27-4	Bromodichloromethane	0.5	U	0.36	1	ug/L
108-10-1	4-Methyl-2-Pentanone	2.5	U	2.1	5	ug/L
108-88-3	Toluene	0.5	U	0.37	1	ug/L
10061-02-6	t-1,3-Dichloropropene	0.5	U	0.29	1	ug/L

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	06/15/11
Project:	CTO WE08	Date Received:	06/17/11
Client Sample ID:	FT-GW424-4145	SDG No.:	C2736
Lab Sample ID:	C2736-03	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VD033710.D	1		06/23/11	VD062311

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
10061-01-5	cis-1,3-Dichloropropene	0.5	U	0.31	1	ug/L
79-00-5	1,1,2-Trichloroethane	0.5	U	0.38	1	ug/L
591-78-6	2-Hexanone	2.5	U	1.9	5	ug/L
124-48-1	Dibromochloromethane	0.5	U	0.2	1	ug/L
106-93-4	1,2-Dibromoethane	0.5	U	0.41	1	ug/L
127-18-4	Tetrachloroethene	0.5	U	0.27	1	ug/L
108-90-7	Chlorobenzene	0.5	U	0.49	1	ug/L
100-41-4	Ethyl Benzene	0.5	U	0.2	1	ug/L
179601-23-1	m/p-Xylenes	1	U	0.95	2	ug/L
95-47-6	o-Xylene	0.5	U	0.43	1	ug/L
100-42-5	Styrene	0.5	U	0.36	1	ug/L
75-25-2	Bromoform	0.5	U	0.47	1	ug/L
98-82-8	Isopropylbenzene	0.5	U	0.45	1	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	0.5	U	0.31	1	ug/L
541-73-1	1,3-Dichlorobenzene	0.5	U	0.43	1	ug/L
106-46-7	1,4-Dichlorobenzene	0.5	U	0.32	1	ug/L
95-50-1	1,2-Dichlorobenzene	0.5	U	0.45	1	ug/L
96-12-8	1,2-Dibromo-3-Chloropropane	0.5	U	0.46	1	ug/L
120-82-1	1,2,4-Trichlorobenzene	0.5	U	0.2	1	ug/L
87-61-6	1,2,3-Trichlorobenzene	0.5	U	0.2	1	ug/L
123-91-1	1,4-Dioxane	10	U	20	20	ug/L
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	50.5		70 - 120	101%	SPK: 50
1868-53-7	Dibromofluoromethane	50.8		85 - 115	102%	SPK: 50
2037-26-5	Toluene-d8	43.5		85 - 120	87%	SPK: 50
460-00-4	4-Bromofluorobenzene	51.8		75 - 120	104%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	451656	4.17			
540-36-3	1,4-Difluorobenzene	652877	4.8			
3114-55-4	Chlorobenzene-d5	942618	7.79			
3855-82-1	1,4-Dichlorobenzene-d4	478068	9.72			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	06/15/11
Project:	CTO WE08	Date Received:	06/17/11
Client Sample ID:	FT-GW424-5155	SDG No.:	C2736
Lab Sample ID:	C2736-04	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VD033711.D	1		06/23/11	VD062311

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	0.5	U	0.2	1	ug/L
74-87-3	Chloromethane	0.5	U	0.2	1	ug/L
75-01-4	Vinyl Chloride	0.5	U	0.34	1	ug/L
74-83-9	Bromomethane	0.5	U	0.2	1	ug/L
75-00-3	Chloroethane	0.5	U	0.2	1	ug/L
75-69-4	Trichlorofluoromethane	0.5	U	0.35	1	ug/L
76-13-1	1,1,2-Trichlorotrifluoroethane	0.5	U	0.45	1	ug/L
75-35-4	1,1-Dichloroethene	0.5	U	0.47	1	ug/L
67-64-1	Acetone	2.5	U	0.5	5	ug/L
75-15-0	Carbon Disulfide	0.5	U	0.2	1	ug/L
1634-04-4	Methyl tert-butyl Ether	0.5	U	0.35	1	ug/L
79-20-9	Methyl Acetate	0.5	U	0.2	1	ug/L
75-09-2	Methylene Chloride	0.5	U	0.41	1	ug/L
156-60-5	trans-1,2-Dichloroethene	0.5	U	0.41	1	ug/L
75-34-3	1,1-Dichloroethane	0.5	U	0.36	1	ug/L
110-82-7	Cyclohexane	0.5	U	0.2	1	ug/L
78-93-3	2-Butanone	2.5	U	1.3	5	ug/L
56-23-5	Carbon Tetrachloride	0.5	U	0.2	1	ug/L
156-59-2	cis-1,2-Dichloroethene	0.5	U	0.35	1	ug/L
74-97-5	Bromochloromethane	0.5	U	0.2	1	ug/L
67-66-3	Chloroform	0.78	J	0.34	1	ug/L
71-55-6	1,1,1-Trichloroethane	0.5	U	0.4	1	ug/L
108-87-2	Methylcyclohexane	0.5	U	0.2	1	ug/L
71-43-2	Benzene	0.5	U	0.32	1	ug/L
107-06-2	1,2-Dichloroethane	0.5	U	0.48	1	ug/L
79-01-6	Trichloroethene	0.5	U	0.28	1	ug/L
78-87-5	1,2-Dichloropropane	0.5	U	0.46	1	ug/L
75-27-4	Bromodichloromethane	0.5	U	0.36	1	ug/L
108-10-1	4-Methyl-2-Pentanone	2.5	U	2.1	5	ug/L
108-88-3	Toluene	0.5	U	0.37	1	ug/L
10061-02-6	t-1,3-Dichloropropene	0.5	U	0.29	1	ug/L

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	06/15/11
Project:	CTO WE08	Date Received:	06/17/11
Client Sample ID:	FT-GW424-5155	SDG No.:	C2736
Lab Sample ID:	C2736-04	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VD033711.D	1		06/23/11	VD062311

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
10061-01-5	cis-1,3-Dichloropropene	0.5	U	0.31	1	ug/L
79-00-5	1,1,2-Trichloroethane	0.5	U	0.38	1	ug/L
591-78-6	2-Hexanone	2.5	U	1.9	5	ug/L
124-48-1	Dibromochloromethane	0.5	U	0.2	1	ug/L
106-93-4	1,2-Dibromoethane	0.5	U	0.41	1	ug/L
127-18-4	Tetrachloroethene	0.5	U	0.27	1	ug/L
108-90-7	Chlorobenzene	0.5	U	0.49	1	ug/L
100-41-4	Ethyl Benzene	0.5	U	0.2	1	ug/L
179601-23-1	m/p-Xylenes	1	U	0.95	2	ug/L
95-47-6	o-Xylene	0.5	U	0.43	1	ug/L
100-42-5	Styrene	0.5	U	0.36	1	ug/L
75-25-2	Bromoform	0.5	U	0.47	1	ug/L
98-82-8	Isopropylbenzene	0.5	U	0.45	1	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	0.5	U	0.31	1	ug/L
541-73-1	1,3-Dichlorobenzene	0.5	U	0.43	1	ug/L
106-46-7	1,4-Dichlorobenzene	0.5	U	0.32	1	ug/L
95-50-1	1,2-Dichlorobenzene	0.5	U	0.45	1	ug/L
96-12-8	1,2-Dibromo-3-Chloropropane	0.5	U	0.46	1	ug/L
120-82-1	1,2,4-Trichlorobenzene	0.5	U	0.2	1	ug/L
87-61-6	1,2,3-Trichlorobenzene	0.5	U	0.2	1	ug/L
123-91-1	1,4-Dioxane	10	U	20	20	ug/L
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	49		70 - 120	98%	SPK: 50
1868-53-7	Dibromofluoromethane	52.4		85 - 115	105%	SPK: 50
2037-26-5	Toluene-d8	46.6		85 - 120	93%	SPK: 50
460-00-4	4-Bromofluorobenzene	54.8		75 - 120	110%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	450320	4.17			
540-36-3	1,4-Difluorobenzene	631931	4.8			
3114-55-4	Chlorobenzene-d5	915441	7.79			
3855-82-1	1,4-Dichlorobenzene-d4	490558	9.73			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	06/15/11
Project:	CTO WE08	Date Received:	06/17/11
Client Sample ID:	FT-GW424-6165	SDG No.:	C2736
Lab Sample ID:	C2736-05	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VD033712.D	1		06/23/11	VD062311

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	0.5	U	0.2	1	ug/L
74-87-3	Chloromethane	0.5	U	0.2	1	ug/L
75-01-4	Vinyl Chloride	0.5	U	0.34	1	ug/L
74-83-9	Bromomethane	0.5	U	0.2	1	ug/L
75-00-3	Chloroethane	0.5	U	0.2	1	ug/L
75-69-4	Trichlorofluoromethane	0.5	U	0.35	1	ug/L
76-13-1	1,1,2-Trichlorotrifluoroethane	0.5	U	0.45	1	ug/L
75-35-4	1,1-Dichloroethene	0.5	U	0.47	1	ug/L
67-64-1	Acetone	2.5	U	0.5	5	ug/L
75-15-0	Carbon Disulfide	0.5	U	0.2	1	ug/L
1634-04-4	Methyl tert-butyl Ether	0.5	U	0.35	1	ug/L
79-20-9	Methyl Acetate	0.5	U	0.2	1	ug/L
75-09-2	Methylene Chloride	0.5	U	0.41	1	ug/L
156-60-5	trans-1,2-Dichloroethene	0.5	U	0.41	1	ug/L
75-34-3	1,1-Dichloroethane	0.5	U	0.36	1	ug/L
110-82-7	Cyclohexane	0.5	U	0.2	1	ug/L
78-93-3	2-Butanone	2.5	U	1.3	5	ug/L
56-23-5	Carbon Tetrachloride	0.5	U	0.2	1	ug/L
156-59-2	cis-1,2-Dichloroethene	0.5	U	0.35	1	ug/L
74-97-5	Bromochloromethane	0.5	U	0.2	1	ug/L
67-66-3	Chloroform	1.2		0.34	1	ug/L
71-55-6	1,1,1-Trichloroethane	0.5	U	0.4	1	ug/L
108-87-2	Methylcyclohexane	0.5	U	0.2	1	ug/L
71-43-2	Benzene	0.5	U	0.32	1	ug/L
107-06-2	1,2-Dichloroethane	0.5	U	0.48	1	ug/L
79-01-6	Trichloroethene	0.5	U	0.28	1	ug/L
78-87-5	1,2-Dichloropropane	0.5	U	0.46	1	ug/L
75-27-4	Bromodichloromethane	0.5	U	0.36	1	ug/L
108-10-1	4-Methyl-2-Pentanone	2.5	U	2.1	5	ug/L
108-88-3	Toluene	0.5	U	0.37	1	ug/L
10061-02-6	t-1,3-Dichloropropene	0.5	U	0.29	1	ug/L

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	06/15/11
Project:	CTO WE08	Date Received:	06/17/11
Client Sample ID:	FT-GW424-6165	SDG No.:	C2736
Lab Sample ID:	C2736-05	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VD033712.D	1		06/23/11	VD062311

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
10061-01-5	cis-1,3-Dichloropropene	0.5	U	0.31	1	ug/L
79-00-5	1,1,2-Trichloroethane	0.5	U	0.38	1	ug/L
591-78-6	2-Hexanone	2.5	U	1.9	5	ug/L
124-48-1	Dibromochloromethane	0.5	U	0.2	1	ug/L
106-93-4	1,2-Dibromoethane	0.5	U	0.41	1	ug/L
127-18-4	Tetrachloroethene	0.5	U	0.27	1	ug/L
108-90-7	Chlorobenzene	0.5	U	0.49	1	ug/L
100-41-4	Ethyl Benzene	0.5	U	0.2	1	ug/L
179601-23-1	m/p-Xylenes	1	U	0.95	2	ug/L
95-47-6	o-Xylene	0.5	U	0.43	1	ug/L
100-42-5	Styrene	0.5	U	0.36	1	ug/L
75-25-2	Bromoform	0.5	U	0.47	1	ug/L
98-82-8	Isopropylbenzene	0.5	U	0.45	1	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	0.5	U	0.31	1	ug/L
541-73-1	1,3-Dichlorobenzene	0.5	U	0.43	1	ug/L
106-46-7	1,4-Dichlorobenzene	0.5	U	0.32	1	ug/L
95-50-1	1,2-Dichlorobenzene	0.5	U	0.45	1	ug/L
96-12-8	1,2-Dibromo-3-Chloropropane	0.5	U	0.46	1	ug/L
120-82-1	1,2,4-Trichlorobenzene	0.5	U	0.2	1	ug/L
87-61-6	1,2,3-Trichlorobenzene	0.5	U	0.2	1	ug/L
123-91-1	1,4-Dioxane	10	U	20	20	ug/L
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	49.4		70 - 120	99%	SPK: 50
1868-53-7	Dibromofluoromethane	51.3		85 - 115	103%	SPK: 50
2037-26-5	Toluene-d8	46.4		85 - 120	93%	SPK: 50
460-00-4	4-Bromofluorobenzene	54.4		75 - 120	109%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	442420	4.18			
540-36-3	1,4-Difluorobenzene	625375	4.8			
3114-55-4	Chlorobenzene-d5	928273	7.8			
3855-82-1	1,4-Dichlorobenzene-d4	484362	9.73			
TENTATIVE IDENTIFIED COMPOUNDS						

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Hit Summary Sheet
SW-846

SDG No.: C2736

Client: Tetra Tech NUS, Inc.

Sample ID	Client ID		Parameter		Concentration	C	RDL	MDL	Units
Client ID:	**FT-GW421-3135**								
C2736-16	FT-GW421-3135	WATER	1,1-Dichloroethane		3.00		1.0	0.36	ug/L
C2736-16	FT-GW421-3135	WATER	1,1,1-Trichloroethane		1.40		1.0	0.40	ug/L
C2736-16	FT-GW421-3135	WATER	Trichloroethene		28.00		1.0	0.28	ug/L
			Total Voc :			**32.40**			
C2736-16	FT-GW421-3135	WATER	Naphthalene	*	0.51	J	1.0	0.20	ug/L
			Total Tics :			**0.51**			
			Total Concentration:			**32.91**			
Client ID:	**FT-GW421-5155**								
C2736-18	FT-GW421-5155	WATER	unknown1.14	*	9.40	J	0	0	ug/L
			Total Tics :			**9.40**			
			Total Concentration:			**9.40**			
Client ID:	**FT-GW421-6165**								
C2736-19	FT-GW421-6165	WATER	Chloroform		0.65	J	1.0	0.34	ug/L
			Total Voc :			**0.65**			
			Total Concentration:			**0.65**			
Client ID:	**FT-GW422-3135**								
C2736-10	FT-GW422-3135	WATER	Trichloroethene		6.20		1.0	0.28	ug/L
C2736-10	FT-GW422-3135	WATER	Tetrachloroethene		0.69	J	1.0	0.27	ug/L
			Total Voc :			**6.89**			
			Total Concentration:			**6.89**			
Client ID:	**FT-GW422-6165**								
C2736-14	FT-GW422-6165	WATER	Chloroform		0.62	J	1.0	0.34	ug/L
			Total Voc :			**0.62**			
			Total Concentration:			**0.62**			
Client ID:	**FT-GW423-6165**								
C2736-06	FT-GW423-6165	WATER	Chloroform		0.58	J	1.0	0.34	ug/L
			Total Voc :			**0.58**			
			Total Concentration:			**0.58**			
Client ID:	**FT-GW424-5155**								
C2736-04	FT-GW424-5155	WATER	Chloroform		0.78	J	1.0	0.34	ug/L
			Total Voc :			**0.78**			
			Total Concentration:			**0.78**			
Client ID:	**FT-GW424-6165**								
C2736-05	FT-GW424-6165	WATER	Chloroform		1.20		1.0	0.34	ug/L
			Total Voc :			**1.20**			
C2736-05	FT-GW424-6165	WATER	2-Butynal	*	11.00	J	0	0	ug/L
			Total Tics :			**11.00**			
			Total Concentration:			**12.20**			

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DATA PACKAGE

VOLATILE ORGANICS

PROJECT NAME : CTO WE63

TETRA TECH NUS, INC.

661 Anderson Drive

Pittsburgh, Pennsylvania - 15220-2745

Phone No: 4129218361

ORDER ID : C4195

ATTENTION : David Brayack

ACCREDITED IN ACCORDANCE WITH nelac

DoD ELAP

Table of Contents for C4195

DATA SUMMARY 9

VOLATILES DATA..... 91

VOLATILES QC DATA..... 92

VOLATILES SAMPLE DATA 113

VOLATILES CALIBRATION DATA 739

VOLATILES RAW QC DATA 824

VOLATILES MISCELLANEOUSDATA 941

SHIPPING AND RECEIVING DOCUMENTATION 971

END OF ANALYTICAL RESULTS.....976

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Cover Page

Order ID : C4195

Project ID : CTO WE63

Client : Tetra Tech NUS, Inc.

Lab Sample Number	Client Sample Number
C4195-01	FT-TB01-20111007
C4195-02	FT-GW428-7175
C4195-03	FT-GW428-6165
C4195-04	FT-GW428-5155
C4195-05	FT-GW428-4145
C4195-06	FT-GW428-3135
C4195-07	C4195-6MS
C4195-08	C4195-6MSD
C4195-09	FT-GW428-2125
C4195-10	FT-GW429-7175
C4195-11	FT-GW429-6165
C4195-12	FT-GW429-5155
C4195-13	FT-DUP01-20111013
C4195-14	FT-FB01-20111014
C4195-15	FT-RB01-20111014
C4195-16	FT-GW429-4145
C4195-17	FT-GW429-3135
C4195-18	FT-GW429-2125
C4195-19	FT-DUP02-20111014

I certify that the data package is in compliance with the terms and conditions of the contract,both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hard copy data package has been authorized by the laboratory manager or his designee, as verified by the following signature.

Signature : _____

CHEMTECH

CASE NARRATIVE

Tetra Tech NUS, Inc.
Project Name: CTO WE63
Project # N/A
Chemtech Project # C4195
Test Name: VOCMS Group1

A. Number of Samples and Date of Receipt:
19 Water samples were received on 10/15/2011.

B. Parameters
According to the Chain of Custody document, the following analyses were requested: VOCMS Group1. This data package contains results for VOCMS Group1.

C. Analytical Techniques:
The analysis performed on instrument MSVOA_G were done using GC column RTX-VMS which is 20 meters, 0.18 mm id, 1.0 um df, Restek Cat. #49914. The Trap was supplied by OI Analytical, OI #10 Trap , OI Eclipse 4660 Concentrator.The analysis of VOCMS Group1 was based on method 8260-Low.

D. QA/ QC Samples:
The Holding Times were met for all analysis.
The Surrogate recoveries met the acceptable criteria except for FT-GW428-4145 [Toluene-d8 - 84%], FT-GW428-4145RE [Toluene-d8 - 79%], FT-GW429-5155 [Toluene-d8 - 79%], FT-GW429-5155RE [Toluene-d8 - 80%], FT-DUP01-20111013 [Toluene-d8 - 82%], FT-DUP01-20111013RE [Toluene-d8 - 83%], FT-GW429-4145 [Toluene-d8 - 74%], FT-GW429-4145RE [Toluene-d8 - 80%], FT-GW429-3135 [Toluene-d8 - 83%], FT-GW429-3135RE [Toluene-d8 - 84%], FT-DUP02-20111014 [Toluene-d8 - 83%] and FT-DUP02-20111014RE [Toluene-d8 - 83%].
Samples failing on surrogate were reanalyzed.
The Internal Standards Areas met the acceptable requirements.
The Retention Times were acceptable for all samples.
The MS recoveries met the requirements for all compounds.
The MSD recoveries met the acceptable requirements.
The RPD recoveries met criteria.
The Blank Spike Duplicate met requirements for all samples .The Blank Spike for {BSG1020W1} with File ID: VG038282.D met requirements for all samples except for Dichlorodifluoromethane[130%] .
The Blank analysis did not indicate the presence of lab contamination.
The Initial Calibration met the requirements.
The Continuous Calibration File ID VG038279.D met the requirements except for Dichlorodifluoromethane, Trichlorofluoromethane, 1,1-Dichloroethene,Acetone and Methylene Chloride. These compounds are not present in any of the samples.
The Tuning criteria met requirements.

E. Additional Comments:

Please use %D calculated based on Avg RF and CCRF for all compounds using Average Response Factor when the %RSD value for a compound is <15% for the Initial Calibration curve and use %D calculated based on Amount added and Calculated amount for all compounds using Linear Regression when the %RSD value for a compound is > 15% for the Initial Calibration curve for SW-846 analysis.

F. Manual Integration Comments:
Please refer to the Manual integration Report included with the Run Logs for information on the manual integrations performed.

I certify that the data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. The laboratory manager or his designee, as verified by the following signature has authorized release of the data contained in this hard copy data package.

Signature_____

I Mildred V. Reyes, as the designated Quality Assurance ~~Officer~~ Supervisor, hereby attest that all electronic deliverables have been thoroughly reviewed and are in agreement with the associated hardcopy data. The enclosed electronic files have been reviewed for accuracy (including significant figures), completeness and format. The laboratory will be responsible for any labor time necessary to correct enclosed electronic deliverables that have been found to be in error. I can be reached at (908) 789-8900 if there are any questions or problems with the enclosed electronic deliverables.

Signature: Mildred V Reyes Title: QA/QC Supervisor Date: 11/21/11

CHEMTECH

284 Sheffield Street Mountainside NJ 07092
Tel. 908-789-8900 Fax: 908-789-8922

DATA REPORTING QUALIFIERS- ORGANIC

For reporting results, the following " Result Qualifiers" are used:

Value	If the result is a value greater than or equal to the detection limit, report the value
U	Indicates the compound was analyzed for but was not detected. Report the minimum detection limit for the sample with the U. This is the detection limit attainable for this particular sample based on any concentration or dilution that may have been required.
ND	Indicates the compound was analyzed for but was not detected
J	Indicates an estimated value**.** This flag is used: (1) When estimating a concentration for a tentatively identified compound (library search hits, where a 1:1 response is assumed.) (2) When the mass spectral data indicated the identification, however the result was less than the specified detection limit greater than zero. If the detection limit was 10ug/L, and a concentration of 3ug/L was calculated, report as 3 J.
B	Indicates the analyte was found in the blank as well as the sample.
E	Indicates the analyte 's concentration exceeds the calibrated range of the instrument for that specific analysis.
D	This flag identifies all compounds identified in an analysis at a secondary dilution factor.
P	This flag is used for Pesticide/PCB target analyte when there is >25% difference for detected concentrations between the two GC columns.
N	This flag indicates presumptive evidence of a compound. This is only used for tentatively identified compounds (TICs), where the identification is based on a mass spectral library search. For generic characterization of a TIC, such as chlorinated hydrocarbon, the flag is not used.
A	This flag indicates that a Tentatively Identified Compound is a suspected Aldol-condensation product.

APPENDIX A

QA REVIEW GENERAL DOCUMENTATION

Project #:_C4195_____

Completed

For thorough review, the report must have the following:

GENERAL:

Are all original paperwork present (chain of custody, record of communication, airbill, sample management lab chronicle, login page) ___✓_____

Check chain-of-custody for proper relinquish/return of samples ___✓_____

Is the chain of custody signed and complete ___✓_____

Check internal chain-of-custody for proper relinquish/return of samples /sample extracts __✓___

Collect information for each project id from server. Were all requirements followed ___✓_____

COVER PAGE:

Do numbers of samples correspond to the number of samples in the Chain of Custody and on login page ___✓_____

Do lab numbers and client Ids on cover page agree with the Chain of Custody ___✓_____

CHAIN OF CUSTODY:

Do requested analyses on Chain of Custody agree with form I results ___✓_____

Do requested analyses on Chain of Custody agree with the log-in page ___✓_____

Were the correct method log-in for analysis according to the Analytical Request and Chain of Custody ___✓_____

Were the samples received within hold time ___✓_____

Were any problems found with the samples at arrival recorded in the Sample Management Laboratory Chronicle ___✓_____

ANALYTICAL:

Was method requirement followed? ___✓_____

Was client requirement followed? ___✓_____

Does the case narrative summarize all QC failure? ___✓_____

All runlogs reviewed for manual integration requirements ___✓___

All manual calculations and /or hand notations verified ___✓ ___

1st Level QA Review Signature:__ __ Date:_11/18/11_____

2nd Level QA Review Signature:_____ Date:_____

DATA SUMMARY

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Arcadis Inc.	Date Collected:	10/13/11
Project:	CTO WE63	Date Received:	10/15/11
Client Sample ID:	FT-GW428-2125	SDG No.:	C4195
Lab Sample ID:	C4195-09	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG038209.D	1		10/18/11	VG101811

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	0.5	U	0.2	1	ug/L
75-01-4	Vinyl Chloride	0.5	U	0.34	1	ug/L
75-69-4	Trichlorofluoromethane	0.5	U	0.35	1	ug/L
75-35-4	1,1-Dichloroethene	0.5	U	0.47	1	ug/L
67-64-1	Acetone	2.5	U	0.5	5	ug/L
75-09-2	Methylene Chloride	0.5	U	0.41	1	ug/L
156-60-5	trans-1,2-Dichloroethene	0.5	U	0.41	1	ug/L
75-34-3	1,1-Dichloroethane	0.5	U	0.36	1	ug/L
78-93-3	2-Butanone	2.5	U	1.3	5	ug/L
156-59-2	cis-1,2-Dichloroethene	0.5	U	0.35	1	ug/L
71-55-6	1,1,1-Trichloroethane	0.5	U	0.4	1	ug/L
71-43-2	Benzene	0.5	U	0.32	1	ug/L
107-06-2	1,2-Dichloroethane	0.5	U	0.48	1	ug/L
79-01-6	Trichloroethene	5.2		0.28	1	ug/L
108-88-3	Toluene	0.5	U	0.37	1	ug/L
79-00-5	1,1,2-Trichloroethane	0.5	U	0.38	1	ug/L
127-18-4	Tetrachloroethene	0.5	U	0.27	1	ug/L
100-41-4	Ethyl Benzene	0.5	U	0.2	1	ug/L
179601-23-1	m/p-Xylenes	1	U	0.95	2	ug/L
95-47-6	o-Xylene	0.5	U	0.43	1	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	0.5	U	0.31	1	ug/L
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	52.1		70 - 120	104%	SPK: 50
1868-53-7	Dibromofluoromethane	49.6		85 - 115	99%	SPK: 50
2037-26-5	Toluene-d8	42.6		85 - 120	85%	SPK: 50
460-00-4	4-Bromofluorobenzene	41.2		75 - 120	82%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	456028	3.93			
540-36-3	1,4-Difluorobenzene	829078	4.75			
3114-55-4	Chlorobenzene-d5	747262	9.7			
3855-82-1	1,4-Dichlorobenzene-d4	331126	13.41			

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Report of Analysis

Client:	Arcadis Inc.	Date Collected:	10/13/11
Project:	CTO WE63	Date Received:	10/15/11
Client Sample ID:	FT-GW428-3135	SDG No.:	C4195
Lab Sample ID:	C4195-06	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG038208.D	1		10/18/11	VG101811

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	0.5	U	0.2	1	ug/L
75-01-4	Vinyl Chloride	0.5	U	0.34	1	ug/L
75-69-4	Trichlorofluoromethane	0.5	U	0.35	1	ug/L
75-35-4	1,1-Dichloroethene	0.5	U	0.47	1	ug/L
67-64-1	Acetone	2.5	U	0.5	5	ug/L
75-09-2	Methylene Chloride	0.5	U	0.41	1	ug/L
156-60-5	trans-1,2-Dichloroethene	0.5	U	0.41	1	ug/L
75-34-3	1,1-Dichloroethane	0.5	U	0.36	1	ug/L
78-93-3	2-Butanone	2.5	U	1.3	5	ug/L
156-59-2	cis-1,2-Dichloroethene	0.5	U	0.35	1	ug/L
71-55-6	1,1,1-Trichloroethane	0.5	U	0.4	1	ug/L
71-43-2	Benzene	0.5	U	0.32	1	ug/L
107-06-2	1,2-Dichloroethane	0.5	U	0.48	1	ug/L
79-01-6	Trichloroethene	0.94	J	0.28	1	ug/L
108-88-3	Toluene	0.5	U	0.37	1	ug/L
79-00-5	1,1,2-Trichloroethane	0.5	U	0.38	1	ug/L
127-18-4	Tetrachloroethene	0.5	U	0.27	1	ug/L
100-41-4	Ethyl Benzene	0.5	U	0.2	1	ug/L
179601-23-1	m/p-Xylenes	1	U	0.95	2	ug/L
95-47-6	o-Xylene	0.5	U	0.43	1	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	0.5	U	0.31	1	ug/L
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	52.3		70 - 120	105%	SPK: 50
1868-53-7	Dibromofluoromethane	50.7		85 - 115	101%	SPK: 50
2037-26-5	Toluene-d8	42.6		85 - 120	85%	SPK: 50
460-00-4	4-Bromofluorobenzene	42.7		75 - 120	85%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	441177	3.93			
540-36-3	1,4-Difluorobenzene	802267	4.75			
3114-55-4	Chlorobenzene-d5	735650	9.7			
3855-82-1	1,4-Dichlorobenzene-d4	336315	13.41			

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Report of Analysis

Client:	Arcadis Inc.	Date Collected:	10/13/11
Project:	CTO WE63	Date Received:	10/15/11
Client Sample ID:	FT-GW428-4145	SDG No.:	C4195
Lab Sample ID:	C4195-05	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG038244.D	1		10/19/11	VG101911

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	0.5	U	0.2	1	ug/L
75-01-4	Vinyl Chloride	0.5	U	0.34	1	ug/L
75-69-4	Trichlorofluoromethane	0.5	U	0.35	1	ug/L
75-35-4	1,1-Dichloroethene	0.5	U	0.47	1	ug/L
67-64-1	Acetone	2.5	U	0.5	5	ug/L
75-09-2	Methylene Chloride	0.5	U	0.41	1	ug/L
156-60-5	trans-1,2-Dichloroethene	0.5	U	0.41	1	ug/L
75-34-3	1,1-Dichloroethane	0.5	U	0.36	1	ug/L
78-93-3	2-Butanone	2.5	U	1.3	5	ug/L
156-59-2	cis-1,2-Dichloroethene	0.5	U	0.35	1	ug/L
71-55-6	1,1,1-Trichloroethane	0.5	U	0.4	1	ug/L
71-43-2	Benzene	0.5	U	0.32	1	ug/L
107-06-2	1,2-Dichloroethane	0.5	U	0.48	1	ug/L
79-01-6	Trichloroethene	0.5	U	0.28	1	ug/L
108-88-3	Toluene	0.5	U	0.37	1	ug/L
79-00-5	1,1,2-Trichloroethane	0.5	U	0.38	1	ug/L
127-18-4	Tetrachloroethene	0.5	U	0.27	1	ug/L
100-41-4	Ethyl Benzene	0.5	U	0.2	1	ug/L
179601-23-1	m/p-Xylenes	1	U	0.95	2	ug/L
95-47-6	o-Xylene	0.5	U	0.43	1	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	0.5	U	0.31	1	ug/L
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	53.5		70 - 120	107%	SPK: 50
1868-53-7	Dibromofluoromethane	49.3		85 - 115	99%	SPK: 50
2037-26-5	Toluene-d8	41.8	*	85 - 120	84%	SPK: 50
460-00-4	4-Bromofluorobenzene	42.2		75 - 120	84%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	438478	3.95			
540-36-3	1,4-Difluorobenzene	842635	4.78			
3114-55-4	Chlorobenzene-d5	758608	9.73			
3855-82-1	1,4-Dichlorobenzene-d4	353744	13.42			

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Report of Analysis

Client:	Arcadis Inc.	Date Collected:	10/13/11
Project:	CTO WE63	Date Received:	10/15/11
Client Sample ID:	FT-GW428-4145RE	SDG No.:	C4195
Lab Sample ID:	C4195-05RE	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG038285.D	1		10/20/11	VG102011

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	0.5	U	0.2	1	ug/L
75-01-4	Vinyl Chloride	0.5	U	0.34	1	ug/L
75-69-4	Trichlorofluoromethane	0.5	U	0.35	1	ug/L
75-35-4	1,1-Dichloroethene	0.5	U	0.47	1	ug/L
67-64-1	Acetone	2.5	U	0.5	5	ug/L
75-09-2	Methylene Chloride	0.5	U	0.41	1	ug/L
156-60-5	trans-1,2-Dichloroethene	0.5	U	0.41	1	ug/L
75-34-3	1,1-Dichloroethane	0.5	U	0.36	1	ug/L
78-93-3	2-Butanone	2.5	U	1.3	5	ug/L
156-59-2	cis-1,2-Dichloroethene	0.5	U	0.35	1	ug/L
71-55-6	1,1,1-Trichloroethane	0.5	U	0.4	1	ug/L
71-43-2	Benzene	0.5	U	0.32	1	ug/L
107-06-2	1,2-Dichloroethane	0.5	U	0.48	1	ug/L
79-01-6	Trichloroethene	0.5	U	0.28	1	ug/L
108-88-3	Toluene	0.5	U	0.37	1	ug/L
79-00-5	1,1,2-Trichloroethane	0.5	U	0.38	1	ug/L
127-18-4	Tetrachloroethene	0.5	U	0.27	1	ug/L
100-41-4	Ethyl Benzene	0.5	U	0.2	1	ug/L
179601-23-1	m/p-Xylenes	1	U	0.95	2	ug/L
95-47-6	o-Xylene	0.5	U	0.43	1	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	0.5	U	0.31	1	ug/L
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	52.6		70 - 120	105%	SPK: 50
1868-53-7	Dibromofluoromethane	49.6		85 - 115	99%	SPK: 50
2037-26-5	Toluene-d8	39.7	*	85 - 120	79%	SPK: 50
460-00-4	4-Bromofluorobenzene	44.2		75 - 120	88%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	441879	3.94			
540-36-3	1,4-Difluorobenzene	813903	4.76			
3114-55-4	Chlorobenzene-d5	782471	9.71			
3855-82-1	1,4-Dichlorobenzene-d4	350914	13.42			

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Report of Analysis

Client:	Arcadis Inc.	Date Collected:	10/13/11
Project:	CTO WE63	Date Received:	10/15/11
Client Sample ID:	FT-GW428-5155	SDG No.:	C4195
Lab Sample ID:	C4195-04	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG038245.D	1		10/19/11	VG101911

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	0.5	U	0.2	1	ug/L
75-01-4	Vinyl Chloride	0.5	U	0.34	1	ug/L
75-69-4	Trichlorofluoromethane	0.5	U	0.35	1	ug/L
75-35-4	1,1-Dichloroethene	0.5	U	0.47	1	ug/L
67-64-1	Acetone	2.5	U	0.5	5	ug/L
75-09-2	Methylene Chloride	0.5	U	0.41	1	ug/L
156-60-5	trans-1,2-Dichloroethene	0.5	U	0.41	1	ug/L
75-34-3	1,1-Dichloroethane	0.5	U	0.36	1	ug/L
78-93-3	2-Butanone	2.5	U	1.3	5	ug/L
156-59-2	cis-1,2-Dichloroethene	0.5	U	0.35	1	ug/L
71-55-6	1,1,1-Trichloroethane	0.5	U	0.4	1	ug/L
71-43-2	Benzene	0.5	U	0.32	1	ug/L
107-06-2	1,2-Dichloroethane	0.5	U	0.48	1	ug/L
79-01-6	Trichloroethene	0.5	U	0.28	1	ug/L
108-88-3	Toluene	0.5	U	0.37	1	ug/L
79-00-5	1,1,2-Trichloroethane	0.5	U	0.38	1	ug/L
127-18-4	Tetrachloroethene	0.5	U	0.27	1	ug/L
100-41-4	Ethyl Benzene	0.5	U	0.2	1	ug/L
179601-23-1	m/p-Xylenes	1	U	0.95	2	ug/L
95-47-6	o-Xylene	0.5	U	0.43	1	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	0.5	U	0.31	1	ug/L
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	53.1		70 - 120	106%	SPK: 50
1868-53-7	Dibromofluoromethane	50.8		85 - 115	102%	SPK: 50
2037-26-5	Toluene-d8	42.9		85 - 120	86%	SPK: 50
460-00-4	4-Bromofluorobenzene	43.3		75 - 120	87%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	438402	3.96			
540-36-3	1,4-Difluorobenzene	802214	4.77			
3114-55-4	Chlorobenzene-d5	743735	9.72			
3855-82-1	1,4-Dichlorobenzene-d4	347500	13.42			

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Report of Analysis

Client:	Arcadis Inc.	Date Collected:	10/13/11
Project:	CTO WE63	Date Received:	10/15/11
Client Sample ID:	FT-GW428-5155	SDG No.:	C4195
Lab Sample ID:	C4195-04	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG038245.D	1		10/19/11	VG101911

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TENTATIVE IDENTIFIED COMPOUNDS						
67-66-3	Chloroform	0.78	J		3.08	ug/L

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Arcadis Inc.	Date Collected:	10/13/11
Project:	CTO WE63	Date Received:	10/15/11
Client Sample ID:	FT-GW428-6165	SDG No.:	C4195
Lab Sample ID:	C4195-03	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG038246.D	1		10/19/11	VG101911

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	0.5	U	0.2	1	ug/L
75-01-4	Vinyl Chloride	0.5	U	0.34	1	ug/L
75-69-4	Trichlorofluoromethane	0.5	U	0.35	1	ug/L
75-35-4	1,1-Dichloroethene	0.5	U	0.47	1	ug/L
67-64-1	Acetone	2.5	U	0.5	5	ug/L
75-09-2	Methylene Chloride	0.5	U	0.41	1	ug/L
156-60-5	trans-1,2-Dichloroethene	0.5	U	0.41	1	ug/L
75-34-3	1,1-Dichloroethane	0.5	U	0.36	1	ug/L
78-93-3	2-Butanone	2.5	U	1.3	5	ug/L
156-59-2	cis-1,2-Dichloroethene	0.5	U	0.35	1	ug/L
71-55-6	1,1,1-Trichloroethane	0.5	U	0.4	1	ug/L
71-43-2	Benzene	0.5	U	0.32	1	ug/L
107-06-2	1,2-Dichloroethane	0.5	U	0.48	1	ug/L
79-01-6	Trichloroethene	0.5	U	0.28	1	ug/L
108-88-3	Toluene	0.5	U	0.37	1	ug/L
79-00-5	1,1,2-Trichloroethane	0.5	U	0.38	1	ug/L
127-18-4	Tetrachloroethene	0.5	U	0.27	1	ug/L
100-41-4	Ethyl Benzene	0.5	U	0.2	1	ug/L
179601-23-1	m/p-Xylenes	1	U	0.95	2	ug/L
95-47-6	o-Xylene	0.5	U	0.43	1	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	0.5	U	0.31	1	ug/L
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	53.6		70 - 120	107%	SPK: 50
1868-53-7	Dibromofluoromethane	52.6		85 - 115	105%	SPK: 50
2037-26-5	Toluene-d8	43.3		85 - 120	87%	SPK: 50
460-00-4	4-Bromofluorobenzene	43.5		75 - 120	87%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	439189	3.94			
540-36-3	1,4-Difluorobenzene	798825	4.77			
3114-55-4	Chlorobenzene-d5	749250	9.72			
3855-82-1	1,4-Dichlorobenzene-d4	350128	13.43			

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Report of Analysis

Client:	Arcadis Inc.	Date Collected:	10/13/11
Project:	CTO WE63	Date Received:	10/15/11
Client Sample ID:	FT-GW428-6165	SDG No.:	C4195
Lab Sample ID:	C4195-03	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG038246.D	1		10/19/11	VG101911

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TENTATIVE IDENTIFIED COMPOUNDS						
74-87-3	Chloromethane	0.45	J		0.87	ug/L
67-66-3	Chloroform	0.44	J		3.08	ug/L

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Arcadis Inc.	Date Collected:	10/13/11
Project:	CTO WE63	Date Received:	10/15/11
Client Sample ID:	FT-GW428-7175	SDG No.:	C4195
Lab Sample ID:	C4195-02	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG038247.D	1		10/19/11	VG101911

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	0.5	U	0.2	1	ug/L
75-01-4	Vinyl Chloride	0.5	U	0.34	1	ug/L
75-69-4	Trichlorofluoromethane	0.5	U	0.35	1	ug/L
75-35-4	1,1-Dichloroethene	0.5	U	0.47	1	ug/L
67-64-1	Acetone	2.5	U	0.5	5	ug/L
75-09-2	Methylene Chloride	0.5	U	0.41	1	ug/L
156-60-5	trans-1,2-Dichloroethene	0.5	U	0.41	1	ug/L
75-34-3	1,1-Dichloroethane	0.5	U	0.36	1	ug/L
78-93-3	2-Butanone	2.5	U	1.3	5	ug/L
156-59-2	cis-1,2-Dichloroethene	0.5	U	0.35	1	ug/L
71-55-6	1,1,1-Trichloroethane	0.5	U	0.4	1	ug/L
71-43-2	Benzene	0.5	U	0.32	1	ug/L
107-06-2	1,2-Dichloroethane	0.5	U	0.48	1	ug/L
79-01-6	Trichloroethene	0.5	U	0.28	1	ug/L
108-88-3	Toluene	0.5	U	0.37	1	ug/L
79-00-5	1,1,2-Trichloroethane	0.5	U	0.38	1	ug/L
127-18-4	Tetrachloroethene	0.5	U	0.27	1	ug/L
100-41-4	Ethyl Benzene	0.5	U	0.2	1	ug/L
179601-23-1	m/p-Xylenes	1	U	0.95	2	ug/L
95-47-6	o-Xylene	0.5	U	0.43	1	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	0.5	U	0.31	1	ug/L
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	51.8		70 - 120	104%	SPK: 50
1868-53-7	Dibromofluoromethane	49.4		85 - 115	99%	SPK: 50
2037-26-5	Toluene-d8	43.6		85 - 120	87%	SPK: 50
460-00-4	4-Bromofluorobenzene	42.1		75 - 120	84%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	447762	3.95			
540-36-3	1,4-Difluorobenzene	822856	4.78			
3114-55-4	Chlorobenzene-d5	755708	9.72			
3855-82-1	1,4-Dichlorobenzene-d4	348572	13.43			

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Report of Analysis

Client:	Arcadis Inc.	Date Collected:	10/13/11
Project:	CTO WE63	Date Received:	10/15/11
Client Sample ID:	FT-DUP01-20111013	SDG No.:	C4195
Lab Sample ID:	C4195-13	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG038248.D	1		10/19/11	VG101911

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	0.5	U	0.2	1	ug/L
75-01-4	Vinyl Chloride	0.5	U	0.34	1	ug/L
75-69-4	Trichlorofluoromethane	0.5	U	0.35	1	ug/L
75-35-4	1,1-Dichloroethene	0.5	U	0.47	1	ug/L
67-64-1	Acetone	2.5	U	0.5	5	ug/L
75-09-2	Methylene Chloride	0.5	U	0.41	1	ug/L
156-60-5	trans-1,2-Dichloroethene	0.5	U	0.41	1	ug/L
75-34-3	1,1-Dichloroethane	0.5	U	0.36	1	ug/L
78-93-3	2-Butanone	2.5	U	1.3	5	ug/L
156-59-2	cis-1,2-Dichloroethene	0.5	U	0.35	1	ug/L
71-55-6	1,1,1-Trichloroethane	0.5	U	0.4	1	ug/L
71-43-2	Benzene	0.5	U	0.32	1	ug/L
107-06-2	1,2-Dichloroethane	0.5	U	0.48	1	ug/L
79-01-6	Trichloroethene	0.5	U	0.28	1	ug/L
108-88-3	Toluene	0.5	U	0.37	1	ug/L
79-00-5	1,1,2-Trichloroethane	0.5	U	0.38	1	ug/L
127-18-4	Tetrachloroethene	0.5	U	0.27	1	ug/L
100-41-4	Ethyl Benzene	0.5	U	0.2	1	ug/L
179601-23-1	m/p-Xylenes	1	U	0.95	2	ug/L
95-47-6	o-Xylene	0.5	U	0.43	1	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	0.5	U	0.31	1	ug/L
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	53.4		70 - 120	107%	SPK: 50
1868-53-7	Dibromofluoromethane	49.1		85 - 115	98%	SPK: 50
2037-26-5	Toluene-d8	41.2	*	85 - 120	82%	SPK: 50
460-00-4	4-Bromofluorobenzene	40.2		75 - 120	80%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	434464	3.94			
540-36-3	1,4-Difluorobenzene	812230	4.77			
3114-55-4	Chlorobenzene-d5	723450	9.72			
3855-82-1	1,4-Dichlorobenzene-d4	328391	13.42			

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Report of Analysis

Client:	Arcadis Inc.	Date Collected:	10/13/11
Project:	CTO WE63	Date Received:	10/15/11
Client Sample ID:	FT-DUP01-20111013RE	SDG No.:	C4195
Lab Sample ID:	C4195-13RE	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG038287.D	1		10/20/11	VG102011

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	0.5	U	0.2	1	ug/L
75-01-4	Vinyl Chloride	0.5	U	0.34	1	ug/L
75-69-4	Trichlorofluoromethane	0.5	U	0.35	1	ug/L
75-35-4	1,1-Dichloroethene	0.5	U	0.47	1	ug/L
67-64-1	Acetone	2.5	U	0.5	5	ug/L
75-09-2	Methylene Chloride	0.5	U	0.41	1	ug/L
156-60-5	trans-1,2-Dichloroethene	0.5	U	0.41	1	ug/L
75-34-3	1,1-Dichloroethane	0.5	U	0.36	1	ug/L
78-93-3	2-Butanone	2.5	U	1.3	5	ug/L
156-59-2	cis-1,2-Dichloroethene	0.5	U	0.35	1	ug/L
71-55-6	1,1,1-Trichloroethane	0.5	U	0.4	1	ug/L
71-43-2	Benzene	0.5	U	0.32	1	ug/L
107-06-2	1,2-Dichloroethane	0.5	U	0.48	1	ug/L
79-01-6	Trichloroethene	0.5	U	0.28	1	ug/L
108-88-3	Toluene	0.5	U	0.37	1	ug/L
79-00-5	1,1,2-Trichloroethane	0.5	U	0.38	1	ug/L
127-18-4	Tetrachloroethene	0.5	U	0.27	1	ug/L
100-41-4	Ethyl Benzene	0.5	U	0.2	1	ug/L
179601-23-1	m/p-Xylenes	1	U	0.95	2	ug/L
95-47-6	o-Xylene	0.5	U	0.43	1	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	0.5	U	0.31	1	ug/L
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	53.6		70 - 120	107%	SPK: 50
1868-53-7	Dibromofluoromethane	51		85 - 115	102%	SPK: 50
2037-26-5	Toluene-d8	41.4	*	85 - 120	83%	SPK: 50
460-00-4	4-Bromofluorobenzene	42.3		75 - 120	85%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	432757	3.94			
540-36-3	1,4-Difluorobenzene	821215	4.75			
3114-55-4	Chlorobenzene-d5	779388	9.71			
3855-82-1	1,4-Dichlorobenzene-d4	338305	13.41			

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Report of Analysis

Client:	Arcadis Inc.	Date Collected:	10/14/11
Project:	CTO WE63	Date Received:	10/15/11
Client Sample ID:	FT-GW429-2125	SDG No.:	C4195
Lab Sample ID:	C4195-18	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG038251.D	1		10/19/11	VG101911

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	0.5	U	0.2	1	ug/L
75-01-4	Vinyl Chloride	0.5	U	0.34	1	ug/L
75-69-4	Trichlorofluoromethane	0.5	U	0.35	1	ug/L
75-35-4	1,1-Dichloroethene	0.5	U	0.47	1	ug/L
67-64-1	Acetone	2.5	U	0.5	5	ug/L
75-09-2	Methylene Chloride	0.5	U	0.41	1	ug/L
156-60-5	trans-1,2-Dichloroethene	0.5	U	0.41	1	ug/L
75-34-3	1,1-Dichloroethane	0.5	U	0.36	1	ug/L
78-93-3	2-Butanone	2.5	U	1.3	5	ug/L
156-59-2	cis-1,2-Dichloroethene	0.5	U	0.35	1	ug/L
71-55-6	1,1,1-Trichloroethane	0.5	U	0.4	1	ug/L
71-43-2	Benzene	0.5	U	0.32	1	ug/L
107-06-2	1,2-Dichloroethane	0.5	U	0.48	1	ug/L
79-01-6	Trichloroethene	0.5	U	0.28	1	ug/L
108-88-3	Toluene	0.5	U	0.37	1	ug/L
79-00-5	1,1,2-Trichloroethane	0.5	U	0.38	1	ug/L
127-18-4	Tetrachloroethene	0.5	U	0.27	1	ug/L
100-41-4	Ethyl Benzene	0.5	U	0.2	1	ug/L
179601-23-1	m/p-Xylenes	1	U	0.95	2	ug/L
95-47-6	o-Xylene	0.5	U	0.43	1	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	0.5	U	0.31	1	ug/L
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	52.6		70 - 120	105%	SPK: 50
1868-53-7	Dibromofluoromethane	50.5		85 - 115	101%	SPK: 50
2037-26-5	Toluene-d8	43.1		85 - 120	86%	SPK: 50
460-00-4	4-Bromofluorobenzene	41.9		75 - 120	84%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	445666	3.96			
540-36-3	1,4-Difluorobenzene	803135	4.78			
3114-55-4	Chlorobenzene-d5	766208	9.73			
3855-82-1	1,4-Dichlorobenzene-d4	346458	13.43			

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Report of Analysis

Client:	Arcadis Inc.	Date Collected:	10/14/11
Project:	CTO WE63	Date Received:	10/15/11
Client Sample ID:	FT-GW429-3135	SDG No.:	C4195
Lab Sample ID:	C4195-17	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG038250.D	1		10/19/11	VG101911

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	0.5	U	0.2	1	ug/L
75-01-4	Vinyl Chloride	0.5	U	0.34	1	ug/L
75-69-4	Trichlorofluoromethane	0.5	U	0.35	1	ug/L
75-35-4	1,1-Dichloroethene	0.5	U	0.47	1	ug/L
67-64-1	Acetone	2.5	U	0.5	5	ug/L
75-09-2	Methylene Chloride	0.5	U	0.41	1	ug/L
156-60-5	trans-1,2-Dichloroethene	0.5	U	0.41	1	ug/L
75-34-3	1,1-Dichloroethane	0.5	U	0.36	1	ug/L
78-93-3	2-Butanone	2.5	U	1.3	5	ug/L
156-59-2	cis-1,2-Dichloroethene	0.5	U	0.35	1	ug/L
71-55-6	1,1,1-Trichloroethane	0.5	U	0.4	1	ug/L
71-43-2	Benzene	0.5	U	0.32	1	ug/L
107-06-2	1,2-Dichloroethane	0.5	U	0.48	1	ug/L
79-01-6	Trichloroethene	0.5	U	0.28	1	ug/L
108-88-3	Toluene	0.5	U	0.37	1	ug/L
79-00-5	1,1,2-Trichloroethane	0.5	U	0.38	1	ug/L
127-18-4	Tetrachloroethene	0.5	U	0.27	1	ug/L
100-41-4	Ethyl Benzene	0.5	U	0.2	1	ug/L
179601-23-1	m/p-Xylenes	1	U	0.95	2	ug/L
95-47-6	o-Xylene	0.5	U	0.43	1	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	0.5	U	0.31	1	ug/L
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	53.2		70 - 120	106%	SPK: 50
1868-53-7	Dibromofluoromethane	50.2		85 - 115	100%	SPK: 50
2037-26-5	Toluene-d8	41.3	*	85 - 120	83%	SPK: 50
460-00-4	4-Bromofluorobenzene	44.3		75 - 120	89%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	432434	3.96			
540-36-3	1,4-Difluorobenzene	795343	4.78			
3114-55-4	Chlorobenzene-d5	763023	9.73			
3855-82-1	1,4-Dichlorobenzene-d4	340746	13.43			

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Report of Analysis

Client:	Arcadis Inc.	Date Collected:	10/14/11
Project:	CTO WE63	Date Received:	10/15/11
Client Sample ID:	FT-GW429-3135RE	SDG No.:	C4195
Lab Sample ID:	C4195-17RE	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG038289.D	1		10/20/11	VG102011

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	0.5	U	0.2	1	ug/L
75-01-4	Vinyl Chloride	0.5	U	0.34	1	ug/L
75-69-4	Trichlorofluoromethane	0.5	U	0.35	1	ug/L
75-35-4	1,1-Dichloroethene	0.5	U	0.47	1	ug/L
67-64-1	Acetone	2.5	U	0.5	5	ug/L
75-09-2	Methylene Chloride	0.5	U	0.41	1	ug/L
156-60-5	trans-1,2-Dichloroethene	0.5	U	0.41	1	ug/L
75-34-3	1,1-Dichloroethane	0.5	U	0.36	1	ug/L
78-93-3	2-Butanone	2.5	U	1.3	5	ug/L
156-59-2	cis-1,2-Dichloroethene	0.5	U	0.35	1	ug/L
71-55-6	1,1,1-Trichloroethane	0.5	U	0.4	1	ug/L
71-43-2	Benzene	0.5	U	0.32	1	ug/L
107-06-2	1,2-Dichloroethane	0.5	U	0.48	1	ug/L
79-01-6	Trichloroethene	0.5	U	0.28	1	ug/L
108-88-3	Toluene	0.5	U	0.37	1	ug/L
79-00-5	1,1,2-Trichloroethane	0.5	U	0.38	1	ug/L
127-18-4	Tetrachloroethene	0.5	U	0.27	1	ug/L
100-41-4	Ethyl Benzene	0.5	U	0.2	1	ug/L
179601-23-1	m/p-Xylenes	1	U	0.95	2	ug/L
95-47-6	o-Xylene	0.5	U	0.43	1	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	0.5	U	0.31	1	ug/L
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	52.2		70 - 120	104%	SPK: 50
1868-53-7	Dibromofluoromethane	51.2		85 - 115	102%	SPK: 50
2037-26-5	Toluene-d8	42	*	85 - 120	84%	SPK: 50
460-00-4	4-Bromofluorobenzene	42.2		75 - 120	84%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	450957	3.94			
540-36-3	1,4-Difluorobenzene	806508	4.76			
3114-55-4	Chlorobenzene-d5	744463	9.72			
3855-82-1	1,4-Dichlorobenzene-d4	344585	13.42			

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Report of Analysis

Client:	Arcadis Inc.	Date Collected:	10/14/11
Project:	CTO WE63	Date Received:	10/15/11
Client Sample ID:	FT-GW429-4145	SDG No.:	C4195
Lab Sample ID:	C4195-16	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG038253.D	1		10/19/11	VG101911

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	0.5	U	0.2	1	ug/L
75-01-4	Vinyl Chloride	0.5	U	0.34	1	ug/L
75-69-4	Trichlorofluoromethane	0.5	U	0.35	1	ug/L
75-35-4	1,1-Dichloroethene	0.5	U	0.47	1	ug/L
67-64-1	Acetone	2.5	U	0.5	5	ug/L
75-09-2	Methylene Chloride	0.5	U	0.41	1	ug/L
156-60-5	trans-1,2-Dichloroethene	0.5	U	0.41	1	ug/L
75-34-3	1,1-Dichloroethane	0.5	U	0.36	1	ug/L
78-93-3	2-Butanone	2.5	U	1.3	5	ug/L
156-59-2	cis-1,2-Dichloroethene	0.5	U	0.35	1	ug/L
71-55-6	1,1,1-Trichloroethane	0.5	U	0.4	1	ug/L
71-43-2	Benzene	0.5	U	0.32	1	ug/L
107-06-2	1,2-Dichloroethane	0.5	U	0.48	1	ug/L
79-01-6	Trichloroethene	0.5	U	0.28	1	ug/L
108-88-3	Toluene	0.5	U	0.37	1	ug/L
79-00-5	1,1,2-Trichloroethane	0.5	U	0.38	1	ug/L
127-18-4	Tetrachloroethene	0.5	U	0.27	1	ug/L
100-41-4	Ethyl Benzene	0.5	U	0.2	1	ug/L
179601-23-1	m/p-Xylenes	1	U	0.95	2	ug/L
95-47-6	o-Xylene	0.5	U	0.43	1	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	0.5	U	0.31	1	ug/L
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	53.6		70 - 120	107%	SPK: 50
1868-53-7	Dibromofluoromethane	51.6		85 - 115	103%	SPK: 50
2037-26-5	Toluene-d8	37.2	*	85 - 120	74%	SPK: 50
460-00-4	4-Bromofluorobenzene	41.4		75 - 120	83%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	420661	3.96			
540-36-3	1,4-Difluorobenzene	771399	4.78			
3114-55-4	Chlorobenzene-d5	714814	9.73			
3855-82-1	1,4-Dichlorobenzene-d4	334983	13.44			

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Report of Analysis

Client:	Arcadis Inc.	Date Collected:	10/14/11
Project:	CTO WE63	Date Received:	10/15/11
Client Sample ID:	FT-GW429-4145RE	SDG No.:	C4195
Lab Sample ID:	C4195-16RE	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG038288.D	1		10/20/11	VG102011

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	0.5	U	0.2	1	ug/L
75-01-4	Vinyl Chloride	0.5	U	0.34	1	ug/L
75-69-4	Trichlorofluoromethane	0.5	U	0.35	1	ug/L
75-35-4	1,1-Dichloroethene	0.5	U	0.47	1	ug/L
67-64-1	Acetone	2.5	U	0.5	5	ug/L
75-09-2	Methylene Chloride	0.5	U	0.41	1	ug/L
156-60-5	trans-1,2-Dichloroethene	0.5	U	0.41	1	ug/L
75-34-3	1,1-Dichloroethane	0.5	U	0.36	1	ug/L
78-93-3	2-Butanone	2.5	U	1.3	5	ug/L
156-59-2	cis-1,2-Dichloroethene	0.5	U	0.35	1	ug/L
71-55-6	1,1,1-Trichloroethane	0.5	U	0.4	1	ug/L
71-43-2	Benzene	0.5	U	0.32	1	ug/L
107-06-2	1,2-Dichloroethane	0.5	U	0.48	1	ug/L
79-01-6	Trichloroethene	0.5	U	0.28	1	ug/L
108-88-3	Toluene	0.5	U	0.37	1	ug/L
79-00-5	1,1,2-Trichloroethane	0.5	U	0.38	1	ug/L
127-18-4	Tetrachloroethene	0.5	U	0.27	1	ug/L
100-41-4	Ethyl Benzene	0.5	U	0.2	1	ug/L
179601-23-1	m/p-Xylenes	1	U	0.95	2	ug/L
95-47-6	o-Xylene	0.5	U	0.43	1	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	0.5	U	0.31	1	ug/L
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	52.7		70 - 120	105%	SPK: 50
1868-53-7	Dibromofluoromethane	50.3		85 - 115	101%	SPK: 50
2037-26-5	Toluene-d8	40.1	*	85 - 120	80%	SPK: 50
460-00-4	4-Bromofluorobenzene	41.6		75 - 120	83%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	442970	3.94			
540-36-3	1,4-Difluorobenzene	811961	4.76			
3114-55-4	Chlorobenzene-d5	744424	9.71			
3855-82-1	1,4-Dichlorobenzene-d4	324387	13.41			

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Report of Analysis

Client:	Arcadis Inc.	Date Collected:	10/13/11
Project:	CTO WE63	Date Received:	10/15/11
Client Sample ID:	FT-GW429-5155	SDG No.:	C4195
Lab Sample ID:	C4195-12	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG038249.D	1		10/19/11	VG101911

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	0.5	U	0.2	1	ug/L
75-01-4	Vinyl Chloride	0.5	U	0.34	1	ug/L
75-69-4	Trichlorofluoromethane	0.5	U	0.35	1	ug/L
75-35-4	1,1-Dichloroethene	0.5	U	0.47	1	ug/L
67-64-1	Acetone	2.5	U	0.5	5	ug/L
75-09-2	Methylene Chloride	0.5	U	0.41	1	ug/L
156-60-5	trans-1,2-Dichloroethene	0.5	U	0.41	1	ug/L
75-34-3	1,1-Dichloroethane	0.5	U	0.36	1	ug/L
78-93-3	2-Butanone	2.5	U	1.3	5	ug/L
156-59-2	cis-1,2-Dichloroethene	0.5	U	0.35	1	ug/L
71-55-6	1,1,1-Trichloroethane	0.5	U	0.4	1	ug/L
71-43-2	Benzene	0.5	U	0.32	1	ug/L
107-06-2	1,2-Dichloroethane	0.5	U	0.48	1	ug/L
79-01-6	Trichloroethene	0.5	U	0.28	1	ug/L
108-88-3	Toluene	0.5	U	0.37	1	ug/L
79-00-5	1,1,2-Trichloroethane	0.5	U	0.38	1	ug/L
127-18-4	Tetrachloroethene	0.5	U	0.27	1	ug/L
100-41-4	Ethyl Benzene	0.5	U	0.2	1	ug/L
179601-23-1	m/p-Xylenes	1	U	0.95	2	ug/L
95-47-6	o-Xylene	0.5	U	0.43	1	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	0.5	U	0.31	1	ug/L
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	53.6		70 - 120	107%	SPK: 50
1868-53-7	Dibromofluoromethane	50.5		85 - 115	101%	SPK: 50
2037-26-5	Toluene-d8	39.3	*	85 - 120	79%	SPK: 50
460-00-4	4-Bromofluorobenzene	41.9		75 - 120	84%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	434339	3.95			
540-36-3	1,4-Difluorobenzene	784488	4.77			
3114-55-4	Chlorobenzene-d5	732969	9.73			
3855-82-1	1,4-Dichlorobenzene-d4	331906	13.42			

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Report of Analysis

Client:	Arcadis Inc.	Date Collected:	10/13/11
Project:	CTO WE63	Date Received:	10/15/11
Client Sample ID:	FT-GW429-5155	SDG No.:	C4195
Lab Sample ID:	C4195-12	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG038249.D	1		10/19/11	VG101911

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TENTATIVE IDENTIFIED COMPOUNDS						
67-66-3	Chloroform	1.4	J		3.08	ug/L

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Arcadis Inc.	Date Collected:	10/13/11
Project:	CTO WE63	Date Received:	10/15/11
Client Sample ID:	FT-GW429-5155RE	SDG No.:	C4195
Lab Sample ID:	C4195-12RE	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG038286.D	1		10/20/11	VG102011

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	0.5	U	0.2	1	ug/L
75-01-4	Vinyl Chloride	0.5	U	0.34	1	ug/L
75-69-4	Trichlorofluoromethane	0.5	U	0.35	1	ug/L
75-35-4	1,1-Dichloroethene	0.5	U	0.47	1	ug/L
67-64-1	Acetone	2.5	U	0.5	5	ug/L
75-09-2	Methylene Chloride	0.5	U	0.41	1	ug/L
156-60-5	trans-1,2-Dichloroethene	0.5	U	0.41	1	ug/L
75-34-3	1,1-Dichloroethane	0.5	U	0.36	1	ug/L
78-93-3	2-Butanone	2.5	U	1.3	5	ug/L
156-59-2	cis-1,2-Dichloroethene	0.5	U	0.35	1	ug/L
71-55-6	1,1,1-Trichloroethane	0.5	U	0.4	1	ug/L
71-43-2	Benzene	0.5	U	0.32	1	ug/L
107-06-2	1,2-Dichloroethane	0.5	U	0.48	1	ug/L
79-01-6	Trichloroethene	0.5	U	0.28	1	ug/L
108-88-3	Toluene	0.5	U	0.37	1	ug/L
79-00-5	1,1,2-Trichloroethane	0.5	U	0.38	1	ug/L
127-18-4	Tetrachloroethene	0.5	U	0.27	1	ug/L
100-41-4	Ethyl Benzene	0.5	U	0.2	1	ug/L
179601-23-1	m/p-Xylenes	1	U	0.95	2	ug/L
95-47-6	o-Xylene	0.5	U	0.43	1	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	0.5	U	0.31	1	ug/L
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	53.1		70 - 120	106%	SPK: 50
1868-53-7	Dibromofluoromethane	51.1		85 - 115	102%	SPK: 50
2037-26-5	Toluene-d8	40.1	*	85 - 120	80%	SPK: 50
460-00-4	4-Bromofluorobenzene	42.9		75 - 120	86%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	434324	3.93			
540-36-3	1,4-Difluorobenzene	799025	4.76			
3114-55-4	Chlorobenzene-d5	755275	9.71			
3855-82-1	1,4-Dichlorobenzene-d4	345375	13.42			

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Report of Analysis

Client:	Arcadis Inc.	Date Collected:	10/13/11
Project:	CTO WE63	Date Received:	10/15/11
Client Sample ID:	FT-GW429-6165	SDG No.:	C4195
Lab Sample ID:	C4195-11	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG038242.D	1		10/19/11	VG101911

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	0.5	U	0.2	1	ug/L
75-01-4	Vinyl Chloride	0.5	U	0.34	1	ug/L
75-69-4	Trichlorofluoromethane	0.5	U	0.35	1	ug/L
75-35-4	1,1-Dichloroethene	0.5	U	0.47	1	ug/L
67-64-1	Acetone	2.5	U	0.5	5	ug/L
75-09-2	Methylene Chloride	0.5	U	0.41	1	ug/L
156-60-5	trans-1,2-Dichloroethene	0.5	U	0.41	1	ug/L
75-34-3	1,1-Dichloroethane	0.5	U	0.36	1	ug/L
78-93-3	2-Butanone	2.5	U	1.3	5	ug/L
156-59-2	cis-1,2-Dichloroethene	0.5	U	0.35	1	ug/L
71-55-6	1,1,1-Trichloroethane	0.5	U	0.4	1	ug/L
71-43-2	Benzene	0.5	U	0.32	1	ug/L
107-06-2	1,2-Dichloroethane	0.5	U	0.48	1	ug/L
79-01-6	Trichloroethene	0.5	U	0.28	1	ug/L
108-88-3	Toluene	0.5	U	0.37	1	ug/L
79-00-5	1,1,2-Trichloroethane	0.5	U	0.38	1	ug/L
127-18-4	Tetrachloroethene	0.5	U	0.27	1	ug/L
100-41-4	Ethyl Benzene	0.5	U	0.2	1	ug/L
179601-23-1	m/p-Xylenes	1	U	0.95	2	ug/L
95-47-6	o-Xylene	0.5	U	0.43	1	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	0.5	U	0.31	1	ug/L
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	53		70 - 120	106%	SPK: 50
1868-53-7	Dibromofluoromethane	49.9		85 - 115	100%	SPK: 50
2037-26-5	Toluene-d8	42.6		85 - 120	85%	SPK: 50
460-00-4	4-Bromofluorobenzene	42.5		75 - 120	85%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	453909	3.95			
540-36-3	1,4-Difluorobenzene	823521	4.76			
3114-55-4	Chlorobenzene-d5	774897	9.72			
3855-82-1	1,4-Dichlorobenzene-d4	360722	13.43			

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Report of Analysis

Client:	Arcadis Inc.	Date Collected:	10/13/11
Project:	CTO WE63	Date Received:	10/15/11
Client Sample ID:	FT-GW429-6165	SDG No.:	C4195
Lab Sample ID:	C4195-11	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG038242.D	1		10/19/11	VG101911

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TENTATIVE IDENTIFIED COMPOUNDS						
67-66-3	Chloroform	0.50	J		3.08	ug/L

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Arcadis Inc.	Date Collected:	10/13/11
Project:	CTO WE63	Date Received:	10/15/11
Client Sample ID:	FT-GW429-7175	SDG No.:	C4195
Lab Sample ID:	C4195-10	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG038211.D	1		10/18/11	VG101811

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	0.5	U	0.2	1	ug/L
75-01-4	Vinyl Chloride	0.5	U	0.34	1	ug/L
75-69-4	Trichlorofluoromethane	0.5	U	0.35	1	ug/L
75-35-4	1,1-Dichloroethene	0.5	U	0.47	1	ug/L
67-64-1	Acetone	2.5	U	0.5	5	ug/L
75-09-2	Methylene Chloride	0.5	U	0.41	1	ug/L
156-60-5	trans-1,2-Dichloroethene	0.5	U	0.41	1	ug/L
75-34-3	1,1-Dichloroethane	0.5	U	0.36	1	ug/L
78-93-3	2-Butanone	2.5	U	1.3	5	ug/L
156-59-2	cis-1,2-Dichloroethene	0.5	U	0.35	1	ug/L
71-55-6	1,1,1-Trichloroethane	0.5	U	0.4	1	ug/L
71-43-2	Benzene	0.5	U	0.32	1	ug/L
107-06-2	1,2-Dichloroethane	0.5	U	0.48	1	ug/L
79-01-6	Trichloroethene	0.5	U	0.28	1	ug/L
108-88-3	Toluene	0.5	U	0.37	1	ug/L
79-00-5	1,1,2-Trichloroethane	0.5	U	0.38	1	ug/L
127-18-4	Tetrachloroethene	0.5	U	0.27	1	ug/L
100-41-4	Ethyl Benzene	0.5	U	0.2	1	ug/L
179601-23-1	m/p-Xylenes	1	U	0.95	2	ug/L
95-47-6	o-Xylene	0.5	U	0.43	1	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	0.5	U	0.31	1	ug/L
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	53.1		70 - 120	106%	SPK: 50
1868-53-7	Dibromofluoromethane	51.3		85 - 115	103%	SPK: 50
2037-26-5	Toluene-d8	43.1		85 - 120	86%	SPK: 50
460-00-4	4-Bromofluorobenzene	42		75 - 120	84%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	447852	3.93			
540-36-3	1,4-Difluorobenzene	782933	4.75			
3114-55-4	Chlorobenzene-d5	739932	9.71			
3855-82-1	1,4-Dichlorobenzene-d4	321651	13.4			

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Report of Analysis

Client:	Arcadis Inc.	Date Collected:	10/14/11
Project:	CTO WE63	Date Received:	10/15/11
Client Sample ID:	FT-DUP02-20111014	SDG No.:	C4195
Lab Sample ID:	C4195-19	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG038252.D	1		10/19/11	VG101911

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	0.5	U	0.2	1	ug/L
75-01-4	Vinyl Chloride	0.5	U	0.34	1	ug/L
75-69-4	Trichlorofluoromethane	0.5	U	0.35	1	ug/L
75-35-4	1,1-Dichloroethene	0.5	U	0.47	1	ug/L
67-64-1	Acetone	2.5	U	0.5	5	ug/L
75-09-2	Methylene Chloride	0.5	U	0.41	1	ug/L
156-60-5	trans-1,2-Dichloroethene	0.5	U	0.41	1	ug/L
75-34-3	1,1-Dichloroethane	0.5	U	0.36	1	ug/L
78-93-3	2-Butanone	2.5	U	1.3	5	ug/L
156-59-2	cis-1,2-Dichloroethene	0.5	U	0.35	1	ug/L
71-55-6	1,1,1-Trichloroethane	0.5	U	0.4	1	ug/L
71-43-2	Benzene	0.5	U	0.32	1	ug/L
107-06-2	1,2-Dichloroethane	0.5	U	0.48	1	ug/L
79-01-6	Trichloroethene	0.5	U	0.28	1	ug/L
108-88-3	Toluene	0.5	U	0.37	1	ug/L
79-00-5	1,1,2-Trichloroethane	0.5	U	0.38	1	ug/L
127-18-4	Tetrachloroethene	0.5	U	0.27	1	ug/L
100-41-4	Ethyl Benzene	0.5	U	0.2	1	ug/L
179601-23-1	m/p-Xylenes	1	U	0.95	2	ug/L
95-47-6	o-Xylene	0.5	U	0.43	1	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	0.5	U	0.31	1	ug/L
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	53		70 - 120	106%	SPK: 50
1868-53-7	Dibromofluoromethane	48.1		85 - 115	96%	SPK: 50
2037-26-5	Toluene-d8	41.4	*	85 - 120	83%	SPK: 50
460-00-4	4-Bromofluorobenzene	42		75 - 120	84%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	435936	3.96			
540-36-3	1,4-Difluorobenzene	800771	4.78			
3114-55-4	Chlorobenzene-d5	735987	9.73			
3855-82-1	1,4-Dichlorobenzene-d4	337782	13.43			

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Report of Analysis

Client:	Arcadis Inc.	Date Collected:	10/14/11
Project:	CTO WE63	Date Received:	10/15/11
Client Sample ID:	FT-DUP02-20111014RE	SDG No.:	C4195
Lab Sample ID:	C4195-19RE	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG038290.D	1		10/20/11	VG102011

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	0.5	U	0.2	1	ug/L
75-01-4	Vinyl Chloride	0.5	U	0.34	1	ug/L
75-69-4	Trichlorofluoromethane	0.5	U	0.35	1	ug/L
75-35-4	1,1-Dichloroethene	0.5	U	0.47	1	ug/L
67-64-1	Acetone	2.5	U	0.5	5	ug/L
75-09-2	Methylene Chloride	0.5	U	0.41	1	ug/L
156-60-5	trans-1,2-Dichloroethene	0.5	U	0.41	1	ug/L
75-34-3	1,1-Dichloroethane	0.5	U	0.36	1	ug/L
78-93-3	2-Butanone	2.5	U	1.3	5	ug/L
156-59-2	cis-1,2-Dichloroethene	0.5	U	0.35	1	ug/L
71-55-6	1,1,1-Trichloroethane	0.5	U	0.4	1	ug/L
71-43-2	Benzene	0.5	U	0.32	1	ug/L
107-06-2	1,2-Dichloroethane	0.5	U	0.48	1	ug/L
79-01-6	Trichloroethene	0.5	U	0.28	1	ug/L
108-88-3	Toluene	0.5	U	0.37	1	ug/L
79-00-5	1,1,2-Trichloroethane	0.5	U	0.38	1	ug/L
127-18-4	Tetrachloroethene	0.5	U	0.27	1	ug/L
100-41-4	Ethyl Benzene	0.5	U	0.2	1	ug/L
179601-23-1	m/p-Xylenes	1	U	0.95	2	ug/L
95-47-6	o-Xylene	0.5	U	0.43	1	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	0.5	U	0.31	1	ug/L
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	53		70 - 120	106%	SPK: 50
1868-53-7	Dibromofluoromethane	49.7		85 - 115	99%	SPK: 50
2037-26-5	Toluene-d8	41.4	*	85 - 120	83%	SPK: 50
460-00-4	4-Bromofluorobenzene	43		75 - 120	86%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	438526	3.94			
540-36-3	1,4-Difluorobenzene	823680	4.76			
3114-55-4	Chlorobenzene-d5	758046	9.72			
3855-82-1	1,4-Dichlorobenzene-d4	344910	13.42			

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Report of Analysis

Client:	Arcadis Inc.	Date Collected:	10/14/11
Project:	CTO WE63	Date Received:	10/15/11
Client Sample ID:	FT-FB01-20111014	SDG No.:	C4195
Lab Sample ID:	C4195-14	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG038200.D	1		10/18/11	VG101811

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	0.5	U	0.2	1	ug/L
75-01-4	Vinyl Chloride	0.5	U	0.34	1	ug/L
75-69-4	Trichlorofluoromethane	0.5	U	0.35	1	ug/L
75-35-4	1,1-Dichloroethene	0.5	U	0.47	1	ug/L
67-64-1	Acetone	2.5	U	0.5	5	ug/L
75-09-2	Methylene Chloride	0.5	U	0.41	1	ug/L
156-60-5	trans-1,2-Dichloroethene	0.5	U	0.41	1	ug/L
75-34-3	1,1-Dichloroethane	0.5	U	0.36	1	ug/L
78-93-3	2-Butanone	2.5	U	1.3	5	ug/L
156-59-2	cis-1,2-Dichloroethene	0.5	U	0.35	1	ug/L
71-55-6	1,1,1-Trichloroethane	0.5	U	0.4	1	ug/L
71-43-2	Benzene	0.5	U	0.32	1	ug/L
107-06-2	1,2-Dichloroethane	0.5	U	0.48	1	ug/L
79-01-6	Trichloroethene	0.5	U	0.28	1	ug/L
108-88-3	Toluene	0.5	U	0.37	1	ug/L
79-00-5	1,1,2-Trichloroethane	0.5	U	0.38	1	ug/L
127-18-4	Tetrachloroethene	0.5	U	0.27	1	ug/L
100-41-4	Ethyl Benzene	0.5	U	0.2	1	ug/L
179601-23-1	m/p-Xylenes	1	U	0.95	2	ug/L
95-47-6	o-Xylene	0.5	U	0.43	1	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	0.5	U	0.31	1	ug/L
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	52		70 - 120	104%	SPK: 50
1868-53-7	Dibromofluoromethane	50.8		85 - 115	102%	SPK: 50
2037-26-5	Toluene-d8	44.5		85 - 120	89%	SPK: 50
460-00-4	4-Bromofluorobenzene	43.1		75 - 120	86%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	450834	3.93			
540-36-3	1,4-Difluorobenzene	832874	4.76			
3114-55-4	Chlorobenzene-d5	782335	9.7			
3855-82-1	1,4-Dichlorobenzene-d4	364050	13.41			

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Report of Analysis

Client:	Arcadis Inc.	Date Collected:	10/14/11
Project:	CTO WE63	Date Received:	10/15/11
Client Sample ID:	FT-RB01-20111014	SDG No.:	C4195
Lab Sample ID:	C4195-15	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG038210.D	1		10/18/11	VG101811

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	0.5	U	0.2	1	ug/L
75-01-4	Vinyl Chloride	0.5	U	0.34	1	ug/L
75-69-4	Trichlorofluoromethane	0.5	U	0.35	1	ug/L
75-35-4	1,1-Dichloroethene	0.5	U	0.47	1	ug/L
67-64-1	Acetone	2.5	U	0.5	5	ug/L
75-09-2	Methylene Chloride	0.5	U	0.41	1	ug/L
156-60-5	trans-1,2-Dichloroethene	0.5	U	0.41	1	ug/L
75-34-3	1,1-Dichloroethane	0.5	U	0.36	1	ug/L
78-93-3	2-Butanone	2.5	U	1.3	5	ug/L
156-59-2	cis-1,2-Dichloroethene	0.5	U	0.35	1	ug/L
71-55-6	1,1,1-Trichloroethane	0.5	U	0.4	1	ug/L
71-43-2	Benzene	0.5	U	0.32	1	ug/L
107-06-2	1,2-Dichloroethane	0.5	U	0.48	1	ug/L
79-01-6	Trichloroethene	0.5	U	0.28	1	ug/L
108-88-3	Toluene	0.5	U	0.37	1	ug/L
79-00-5	1,1,2-Trichloroethane	0.5	U	0.38	1	ug/L
127-18-4	Tetrachloroethene	0.5	U	0.27	1	ug/L
100-41-4	Ethyl Benzene	0.5	U	0.2	1	ug/L
179601-23-1	m/p-Xylenes	1	U	0.95	2	ug/L
95-47-6	o-Xylene	0.5	U	0.43	1	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	0.5	U	0.31	1	ug/L
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	53.9		70 - 120	108%	SPK: 50
1868-53-7	Dibromofluoromethane	50		85 - 115	100%	SPK: 50
2037-26-5	Toluene-d8	44.1		85 - 120	88%	SPK: 50
460-00-4	4-Bromofluorobenzene	41.6		75 - 120	83%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	433999	3.93			
540-36-3	1,4-Difluorobenzene	817847	4.75			
3114-55-4	Chlorobenzene-d5	743599	9.71			
3855-82-1	1,4-Dichlorobenzene-d4	317935	13.41			

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Report of Analysis

Client:	Arcadis Inc.	Date Collected:	10/07/11
Project:	CTO WE63	Date Received:	10/15/11
Client Sample ID:	FT-TB01-20111007	SDG No.:	C4195
Lab Sample ID:	C4195-01	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG038199.D	1		10/18/11	VG101811

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	0.5	U	0.2	1	ug/L
75-01-4	Vinyl Chloride	0.5	U	0.34	1	ug/L
75-69-4	Trichlorofluoromethane	0.5	U	0.35	1	ug/L
75-35-4	1,1-Dichloroethene	0.5	U	0.47	1	ug/L
67-64-1	Acetone	2.5	U	0.5	5	ug/L
75-09-2	Methylene Chloride	0.5	U	0.41	1	ug/L
156-60-5	trans-1,2-Dichloroethene	0.5	U	0.41	1	ug/L
75-34-3	1,1-Dichloroethane	0.5	U	0.36	1	ug/L
78-93-3	2-Butanone	2.5	U	1.3	5	ug/L
156-59-2	cis-1,2-Dichloroethene	0.5	U	0.35	1	ug/L
71-55-6	1,1,1-Trichloroethane	0.5	U	0.4	1	ug/L
71-43-2	Benzene	0.5	U	0.32	1	ug/L
107-06-2	1,2-Dichloroethane	0.5	U	0.48	1	ug/L
79-01-6	Trichloroethene	0.5	U	0.28	1	ug/L
108-88-3	Toluene	0.5	U	0.37	1	ug/L
79-00-5	1,1,2-Trichloroethane	0.5	U	0.38	1	ug/L
127-18-4	Tetrachloroethene	0.5	U	0.27	1	ug/L
100-41-4	Ethyl Benzene	0.5	U	0.2	1	ug/L
179601-23-1	m/p-Xylenes	1	U	0.95	2	ug/L
95-47-6	o-Xylene	0.5	U	0.43	1	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	0.5	U	0.31	1	ug/L
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	51.1		70 - 120	102%	SPK: 50
1868-53-7	Dibromofluoromethane	50.2		85 - 115	100%	SPK: 50
2037-26-5	Toluene-d8	43.7		85 - 120	87%	SPK: 50
460-00-4	4-Bromofluorobenzene	43.9		75 - 120	88%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	463667	3.93			
540-36-3	1,4-Difluorobenzene	838555	4.75			
3114-55-4	Chlorobenzene-d5	799702	9.7			
3855-82-1	1,4-Dichlorobenzene-d4	357357	13.41			

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Hit Summary Sheet
SW-846

SDG No.: C4131

Client: Arcadis Inc.

Sample ID	Client ID		Parameter		Concentration	C	RDL	MDL	Units
Client ID:	**FT-GW428-2125**								
C4195-09	FT-GW428-2125	WATER	Trichloroethene		5.20		1.0	0.28	ug/L
			Total Voc :			**5.20**			
			Total Concentration:			**5.20**			
Client ID:	**FT-GW428-3135**								
C4195-06	FT-GW428-3135	WATER	Trichloroethene		0.94	J	1.0	0.28	ug/L
			Total Voc :			**0.94**			
			Total Concentration:			**0.94**			
Client ID:	**FT-GW428-4145**								
C4195-05	FT-GW428-4145	WATER	Chloroform	*	0.68	J	1.0	0.34	ug/L
			Total Tics :			**0.68**			
			Total Concentration:			**0.68**			
Client ID:	**FT-GW428-5155**								
C4195-04	FT-GW428-5155	WATER	Chloroform	*	0.78	J	1.0	0.34	ug/L
			Total Tics :			**0.78**			
			Total Concentration:			**0.78**			
Client ID:	**FT-GW428-6165**								
C4195-03	FT-GW428-6165	WATER	Chloromethane	*	0.45	J	1.0	0.20	ug/L
C4195-03	FT-GW428-6165	WATER	Chloroform	*	0.44	J	1.0	0.34	ug/L
			Total Tics :			**0.89**			
			Total Concentration:			**0.89**			
Client ID:	**FT-GW429-5155**								
C4195-12	FT-GW429-5155	WATER	Chloroform	*	1.40	J	1.0	0.34	ug/L
			Total Tics :			**1.40**			
			Total Concentration:			**1.40**			
Client ID:	**FT-GW429-6165**								
C4195-11	FT-GW429-6165	WATER	Chloroform	*	0.50	J	1.0	0.34	ug/L
			Total Tics :			**0.50**			
			Total Concentration:			**0.50**			

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ANALYTICAL RESULTS SUMMARY

PROJECT NAME : CTO WE63

TETRA TECH NUS, INC.
661 Anderson Drive

Pittsburgh , Pennsylvania - 15220-2745
Phone No: 4129218361

ORDER ID : C4269
ATTENTION : David Brayack

ACCREDITED IN ACCORDANCE WITH nelac

DoD ELAP

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Cover Page

Order ID : C4269

Project ID : CTO WE63

Client : Tetra Tech NUS, Inc.

Lab Sample Number	Client Sample Number
C4269-01	FT-TB02-20111007
C4269-02	FT-GW430-7175
C4269-03	FT-GW430-6165
C4269-04	FT-GW430-5155
C4269-05	FT-GW430-4145
C4269-06	FT-GW430-3135
C4269-07	FT-GW430-2125
C4269-08	FT-MW03S-20111018
C4269-09	FT-MW01S-20111018
C4269-10	FT-MW01I-20111018

I certify that the data package is in compliance with the terms and conditions of the contract,both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hard copy data package has been authorized by the laboratory manager or his designee, as verified by the following signature.

Signature : _____

NYDOH CERTIFICATION NO - 11376

NJDEP CERTIFICATION NO - 20012

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CASE NARRATIVE

Tetra Tech NUS, Inc.
Project Name: CTO WE63
Project # N/A
Chemtech Project # C4269
Test Name: VOCMS Group1

A. Number of Samples and Date of Receipt:
10 Water samples were received on 10/20/2011.

B. Parameters
According to the Chain of Custody document, the following analyses were requested: VOCMS Group1. This data package contains results for VOCMS Group1.

C. Analytical Techniques:
The analysis performed on instrument MSVOA_G were done using GC column RTX-VMS which is 20 meters, 0.18 mm id, 1.0 um df, Restek Cat. #49914. The Trap was supplied by OI Analytical, OI #10 Trap , OI Eclipse 4660 Concentrator.The analysis of VOCMS Group1 was based on method 8260-Low.

D. QA/ QC Samples:
The Holding Times were met for all analysis except for FT-GW430-7175RE, FT-GW430-3135RE, FT-GW430-4145RE and FT-GW430-5155RE by two days.
The Surrogate recoveries met the acceptable criteria except for FT-GW430-7175 [Toluene-d8 - 82%], FT-GW430-5155 [Toluene-d8 - 78%], FT-GW430-4145 [Toluene-d8 - 75%] and FT-GW430-3135 [Toluene-d8 - 78%]. All failing surrogate is re analyzed and reported.
The Internal Standards Areas met the acceptable requirements.
The Retention Times were acceptable for all samples.
The MS {C4223-04MS} with File ID: VG038509.D recoveries met the requirements for all compounds except for Benzene[130%], cis-1,2-Dichloroethene[130%], Methylene Chloride[144%] and Trichloroethene[198%] .
The MSD {C4223-05MSD} with File ID: VG038510.D recoveries met the acceptable requirements except for Acetone[144%], Benzene[128%], cis-1,2-Dichloroethene[132%], Methylene Chloride[142%] and Trichloroethene[198%] .
The RPD recoveries met criteria .
The Blank Spike for {BSG1021W1} with File ID: VG038318.D met requirements for all samples except for Dichlorodifluoromethane[130%], Trichlorofluoromethane[140%] .
The Blank Spike for {BSG1102W1} with File ID: VG038514.D met requirements for all samples except for Benzene[125%], cis-1,2-Dichloroethene[135%] and Methylene Chloride[200%] .
The Blank analysis did not indicate the presence of lab contamination.
The Initial Calibration met the requirements .

The Continuous Calibration File ID VG038316.D met the requirements except for Dichlorodifluoromethane , Trichlorofluoromethane, Acetone and 1!1!1-Trichloroethane.
The Continuous Calibration File ID VG038479.D met the requirements except for Acetone . The Continuous Calibration File ID VG038504.D met the requirements except for Acetone, Tetrachloroethene and Methylene Chloride .
The Continuous Calibration File ID VG038512.D met the requirements except for Methylene Chloride but it is not present in the associates samples.
The Tuning criteria met requirements.

E. Additional Comments:
Please use %D calculated based on Avg RF and CCRF for all compounds using Average Response Factor when the %RSD value for a compound is <15% for the Initial Calibration curve and use %D calculated based on Amount added and Calculated amount for all compounds using Linear Regression when the %RSD value for a compound is > 15% for the Initial Calibration curve for SW-846 analysis.

F. Manual Integration Comments:
Please refer to the Manual integration Report included with the Run Logs for information on the manual integrations performed.

I certify that the data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. The laboratory manager or his designee, as verified by the following signature has authorized release of the data contained in this hard copy data package.

Signature_____

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	10/18/11
Project:	CTO WE63	Date Received:	10/20/11
Client Sample ID:	FT-MW01I-20111018	SDG No.:	C4269
Lab Sample ID:	C4269-10	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG038500.D	1		10/29/11	VG102811

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	0.5	U	0.2	1	ug/L
75-01-4	Vinyl Chloride	0.5	U	0.34	1	ug/L
75-69-4	Trichlorofluoromethane	0.5	U	0.35	1	ug/L
75-35-4	1,1-Dichloroethene	0.5	U	0.47	1	ug/L
67-64-1	Acetone	2.5	U	0.5	5	ug/L
75-09-2	Methylene Chloride	0.5	U	0.41	1	ug/L
156-60-5	trans-1,2-Dichloroethene	0.5	U	0.41	1	ug/L
75-34-3	1,1-Dichloroethane	0.5	U	0.36	1	ug/L
78-93-3	2-Butanone	2.5	U	1.3	5	ug/L
156-59-2	cis-1,2-Dichloroethene	0.5	U	0.35	1	ug/L
71-55-6	1,1,1-Trichloroethane	0.5	U	0.4	1	ug/L
71-43-2	Benzene	0.5	U	0.32	1	ug/L
107-06-2	1,2-Dichloroethane	0.5	U	0.48	1	ug/L
79-01-6	Trichloroethene	0.5	U	0.28	1	ug/L
108-88-3	Toluene	0.5	U	0.37	1	ug/L
79-00-5	1,1,2-Trichloroethane	0.5	U	0.38	1	ug/L
127-18-4	Tetrachloroethene	0.5	U	0.27	1	ug/L
100-41-4	Ethyl Benzene	0.5	U	0.2	1	ug/L
179601-23-1	m/p-Xylenes	1	U	0.95	2	ug/L
95-47-6	o-Xylene	0.5	U	0.43	1	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	0.5	U	0.31	1	ug/L
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	51.5		70 - 120	103%	SPK: 50
1868-53-7	Dibromofluoromethane	47.4		85 - 115	95%	SPK: 50
2037-26-5	Toluene-d8	42.6		85 - 120	85%	SPK: 50
460-00-4	4-Bromofluorobenzene	42.6		75 - 120	85%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	488824	3.91			
540-36-3	1,4-Difluorobenzene	940062	4.73			
3114-55-4	Chlorobenzene-d5	862369	9.68			
3855-82-1	1,4-Dichlorobenzene-d4	384657	13.39			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	10/18/11
Project:	CTO WE63	Date Received:	10/20/11
Client Sample ID:	FT-MW01S-20111018	SDG No.:	C4269
Lab Sample ID:	C4269-09	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG038499.D	1		10/29/11	VG102811

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	0.5	U	0.2	1	ug/L
75-01-4	Vinyl Chloride	0.5	U	0.34	1	ug/L
75-69-4	Trichlorofluoromethane	0.5	U	0.35	1	ug/L
75-35-4	1,1-Dichloroethene	0.5	U	0.47	1	ug/L
67-64-1	Acetone	2.5	U	0.5	5	ug/L
75-09-2	Methylene Chloride	0.5	U	0.41	1	ug/L
156-60-5	trans-1,2-Dichloroethene	0.5	U	0.41	1	ug/L
75-34-3	1,1-Dichloroethane	0.5	U	0.36	1	ug/L
78-93-3	2-Butanone	2.5	U	1.3	5	ug/L
156-59-2	cis-1,2-Dichloroethene	0.5	U	0.35	1	ug/L
71-55-6	1,1,1-Trichloroethane	0.5	U	0.4	1	ug/L
71-43-2	Benzene	0.5	U	0.32	1	ug/L
107-06-2	1,2-Dichloroethane	0.5	U	0.48	1	ug/L
79-01-6	Trichloroethene	0.5	U	0.28	1	ug/L
108-88-3	Toluene	0.5	U	0.37	1	ug/L
79-00-5	1,1,2-Trichloroethane	0.5	U	0.38	1	ug/L
127-18-4	Tetrachloroethene	0.5	U	0.27	1	ug/L
100-41-4	Ethyl Benzene	0.5	U	0.2	1	ug/L
179601-23-1	m/p-Xylenes	1	U	0.95	2	ug/L
95-47-6	o-Xylene	0.5	U	0.43	1	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	0.5	U	0.31	1	ug/L
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	50.1		70 - 120	100%	SPK: 50
1868-53-7	Dibromofluoromethane	47.2		85 - 115	94%	SPK: 50
2037-26-5	Toluene-d8	43.3		85 - 120	87%	SPK: 50
460-00-4	4-Bromofluorobenzene	40.4		75 - 120	81%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	487960	3.92			
540-36-3	1,4-Difluorobenzene	976229	4.73			
3114-55-4	Chlorobenzene-d5	871152	9.68			
3855-82-1	1,4-Dichlorobenzene-d4	395964	13.39			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	10/18/11
Project:	CTO WE63	Date Received:	10/20/11
Client Sample ID:	FT-MW03S-20111018	SDG No.:	C4269
Lab Sample ID:	C4269-08	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG038498.D	1		10/29/11	VG102811

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	0.5	U	0.2	1	ug/L
75-01-4	Vinyl Chloride	0.5	U	0.34	1	ug/L
75-69-4	Trichlorofluoromethane	0.5	U	0.35	1	ug/L
75-35-4	1,1-Dichloroethene	0.5	U	0.47	1	ug/L
67-64-1	Acetone	2.5	U	0.5	5	ug/L
75-09-2	Methylene Chloride	0.5	U	0.41	1	ug/L
156-60-5	trans-1,2-Dichloroethene	0.5	U	0.41	1	ug/L
75-34-3	1,1-Dichloroethane	0.5	U	0.36	1	ug/L
78-93-3	2-Butanone	2.5	U	1.3	5	ug/L
156-59-2	cis-1,2-Dichloroethene	0.5	U	0.35	1	ug/L
71-55-6	1,1,1-Trichloroethane	0.5	U	0.4	1	ug/L
71-43-2	Benzene	0.5	U	0.32	1	ug/L
107-06-2	1,2-Dichloroethane	0.5	U	0.48	1	ug/L
79-01-6	Trichloroethene	3.2		0.28	1	ug/L
108-88-3	Toluene	0.5	U	0.37	1	ug/L
79-00-5	1,1,2-Trichloroethane	0.5	U	0.38	1	ug/L
127-18-4	Tetrachloroethene	0.5	U	0.27	1	ug/L
100-41-4	Ethyl Benzene	0.5	U	0.2	1	ug/L
179601-23-1	m/p-Xylenes	1	U	0.95	2	ug/L
95-47-6	o-Xylene	0.5	U	0.43	1	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	0.5	U	0.31	1	ug/L
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	50.4		70 - 120	101%	SPK: 50
1868-53-7	Dibromofluoromethane	46		85 - 115	92%	SPK: 50
2037-26-5	Toluene-d8	44.7		85 - 120	89%	SPK: 50
460-00-4	4-Bromofluorobenzene	41		75 - 120	82%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	485424	3.91			
540-36-3	1,4-Difluorobenzene	971744	4.73			
3114-55-4	Chlorobenzene-d5	876613	9.68			
3855-82-1	1,4-Dichlorobenzene-d4	413804	13.39			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	10/17/11
Project:	CTO WE63	Date Received:	10/20/11
Client Sample ID:	FT-GW430-2125	SDG No.:	C4269
Lab Sample ID:	C4269-07	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG038497.D	1		10/29/11	VG102811

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	0.5	U	0.2	1	ug/L
75-01-4	Vinyl Chloride	0.5	U	0.34	1	ug/L
75-69-4	Trichlorofluoromethane	0.5	U	0.35	1	ug/L
75-35-4	1,1-Dichloroethene	0.5	U	0.47	1	ug/L
67-64-1	Acetone	2.5	U	0.5	5	ug/L
75-09-2	Methylene Chloride	0.5	U	0.41	1	ug/L
156-60-5	trans-1,2-Dichloroethene	0.5	U	0.41	1	ug/L
75-34-3	1,1-Dichloroethane	0.5	U	0.36	1	ug/L
78-93-3	2-Butanone	2.5	U	1.3	5	ug/L
156-59-2	cis-1,2-Dichloroethene	0.5	U	0.35	1	ug/L
71-55-6	1,1,1-Trichloroethane	0.5	U	0.4	1	ug/L
71-43-2	Benzene	0.5	U	0.32	1	ug/L
107-06-2	1,2-Dichloroethane	0.5	U	0.48	1	ug/L
79-01-6	Trichloroethene	0.5	U	0.28	1	ug/L
108-88-3	Toluene	0.5	U	0.37	1	ug/L
79-00-5	1,1,2-Trichloroethane	0.5	U	0.38	1	ug/L
127-18-4	Tetrachloroethene	0.5	U	0.27	1	ug/L
100-41-4	Ethyl Benzene	0.5	U	0.2	1	ug/L
179601-23-1	m/p-Xylenes	1	U	0.95	2	ug/L
95-47-6	o-Xylene	0.5	U	0.43	1	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	0.5	U	0.31	1	ug/L
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	50.3		70 - 120	101%	SPK: 50
1868-53-7	Dibromofluoromethane	47.9		85 - 115	96%	SPK: 50
2037-26-5	Toluene-d8	43.4		85 - 120	87%	SPK: 50
460-00-4	4-Bromofluorobenzene	43.1		75 - 120	86%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	492255	3.92			
540-36-3	1,4-Difluorobenzene	961333	4.73			
3114-55-4	Chlorobenzene-d5	921824	9.68			
3855-82-1	1,4-Dichlorobenzene-d4	423011	13.38			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	10/17/11
Project:	CTO WE63	Date Received:	10/20/11
Client Sample ID:	FT-GW430-3135	SDG No.:	C4269
Lab Sample ID:	C4269-06	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG038496.D	1		10/29/11	VG102811

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	0.5	U	0.2	1	ug/L
75-01-4	Vinyl Chloride	0.5	U	0.34	1	ug/L
75-69-4	Trichlorofluoromethane	0.5	U	0.35	1	ug/L
75-35-4	1,1-Dichloroethene	0.5	U	0.47	1	ug/L
67-64-1	Acetone	2.5	U	0.5	5	ug/L
75-09-2	Methylene Chloride	0.5	U	0.41	1	ug/L
156-60-5	trans-1,2-Dichloroethene	0.5	U	0.41	1	ug/L
75-34-3	1,1-Dichloroethane	0.5	U	0.36	1	ug/L
78-93-3	2-Butanone	2.5	U	1.3	5	ug/L
156-59-2	cis-1,2-Dichloroethene	0.5	U	0.35	1	ug/L
71-55-6	1,1,1-Trichloroethane	0.5	U	0.4	1	ug/L
71-43-2	Benzene	0.5	U	0.32	1	ug/L
107-06-2	1,2-Dichloroethane	0.5	U	0.48	1	ug/L
79-01-6	Trichloroethene	0.5	U	0.28	1	ug/L
108-88-3	Toluene	0.5	U	0.37	1	ug/L
79-00-5	1,1,2-Trichloroethane	0.5	U	0.38	1	ug/L
127-18-4	Tetrachloroethene	0.5	U	0.27	1	ug/L
100-41-4	Ethyl Benzene	0.5	U	0.2	1	ug/L
179601-23-1	m/p-Xylenes	1	U	0.95	2	ug/L
95-47-6	o-Xylene	0.5	U	0.43	1	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	0.5	U	0.31	1	ug/L
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	51.2		70 - 120	102%	SPK: 50
1868-53-7	Dibromofluoromethane	48.4		85 - 115	97%	SPK: 50
2037-26-5	Toluene-d8	38.8	*	85 - 120	78%	SPK: 50
460-00-4	4-Bromofluorobenzene	41.4		75 - 120	83%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	503837	3.92			
540-36-3	1,4-Difluorobenzene	995198	4.73			
3114-55-4	Chlorobenzene-d5	942709	9.68			
3855-82-1	1,4-Dichlorobenzene-d4	424606	13.39			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	10/17/11
Project:	CTO WE63	Date Received:	10/20/11
Client Sample ID:	FT-GW430-3135RE	SDG No.:	C4269
Lab Sample ID:	C4269-06RE	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG038524.D	1		11/02/11	VG110211

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	0.5	U	0.2	1	ug/L
75-01-4	Vinyl Chloride	0.5	U	0.34	1	ug/L
75-69-4	Trichlorofluoromethane	0.5	U	0.35	1	ug/L
75-35-4	1,1-Dichloroethene	0.5	U	0.47	1	ug/L
67-64-1	Acetone	2.5	U	0.5	5	ug/L
75-09-2	Methylene Chloride	0.5	U	0.41	1	ug/L
156-60-5	trans-1,2-Dichloroethene	0.5	U	0.41	1	ug/L
75-34-3	1,1-Dichloroethane	0.5	U	0.36	1	ug/L
78-93-3	2-Butanone	2.5	U	1.3	5	ug/L
156-59-2	cis-1,2-Dichloroethene	0.5	U	0.35	1	ug/L
71-55-6	1,1,1-Trichloroethane	0.5	U	0.4	1	ug/L
71-43-2	Benzene	0.5	U	0.32	1	ug/L
107-06-2	1,2-Dichloroethane	0.5	U	0.48	1	ug/L
79-01-6	Trichloroethene	0.5	U	0.28	1	ug/L
108-88-3	Toluene	0.5	U	0.37	1	ug/L
79-00-5	1,1,2-Trichloroethane	0.5	U	0.38	1	ug/L
127-18-4	Tetrachloroethene	0.5	U	0.27	1	ug/L
100-41-4	Ethyl Benzene	0.5	U	0.2	1	ug/L
179601-23-1	m/p-Xylenes	1	U	0.95	2	ug/L
95-47-6	o-Xylene	0.5	U	0.43	1	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	0.5	U	0.31	1	ug/L
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	41		70 - 120	82%	SPK: 50
1868-53-7	Dibromofluoromethane	45.7		85 - 115	91%	SPK: 50
2037-26-5	Toluene-d8	45		85 - 120	90%	SPK: 50
460-00-4	4-Bromofluorobenzene	41.7		75 - 120	83%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	348969	3.9			
540-36-3	1,4-Difluorobenzene	661427	4.72			
3114-55-4	Chlorobenzene-d5	631127	9.69			
3855-82-1	1,4-Dichlorobenzene-d4	278498	13.38			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	10/17/11
Project:	CTO WE63	Date Received:	10/20/11
Client Sample ID:	FT-GW430-4145	SDG No.:	C4269
Lab Sample ID:	C4269-05	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG038495.D	1		10/29/11	VG102811

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	0.5	U	0.2	1	ug/L
75-01-4	Vinyl Chloride	0.5	U	0.34	1	ug/L
75-69-4	Trichlorofluoromethane	0.5	U	0.35	1	ug/L
75-35-4	1,1-Dichloroethene	0.5	U	0.47	1	ug/L
67-64-1	Acetone	2.5	U	0.5	5	ug/L
75-09-2	Methylene Chloride	0.5	U	0.41	1	ug/L
156-60-5	trans-1,2-Dichloroethene	0.5	U	0.41	1	ug/L
75-34-3	1,1-Dichloroethane	0.5	U	0.36	1	ug/L
78-93-3	2-Butanone	2.5	U	1.3	5	ug/L
156-59-2	cis-1,2-Dichloroethene	0.5	U	0.35	1	ug/L
71-55-6	1,1,1-Trichloroethane	0.5	U	0.4	1	ug/L
71-43-2	Benzene	0.5	U	0.32	1	ug/L
107-06-2	1,2-Dichloroethane	0.5	U	0.48	1	ug/L
79-01-6	Trichloroethene	0.5	U	0.28	1	ug/L
108-88-3	Toluene	0.5	U	0.37	1	ug/L
79-00-5	1,1,2-Trichloroethane	0.5	U	0.38	1	ug/L
127-18-4	Tetrachloroethene	0.5	U	0.27	1	ug/L
100-41-4	Ethyl Benzene	0.5	U	0.2	1	ug/L
179601-23-1	m/p-Xylenes	1	U	0.95	2	ug/L
95-47-6	o-Xylene	0.5	U	0.43	1	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	0.5	U	0.31	1	ug/L
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	47.9		70 - 120	96%	SPK: 50
1868-53-7	Dibromofluoromethane	47.3		85 - 115	95%	SPK: 50
2037-26-5	Toluene-d8	37.5	*	85 - 120	75%	SPK: 50
460-00-4	4-Bromofluorobenzene	45.4		75 - 120	91%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	528758	3.92			
540-36-3	1,4-Difluorobenzene	1009950	4.73			
3114-55-4	Chlorobenzene-d5	988283	9.69			
3855-82-1	1,4-Dichlorobenzene-d4	450876	13.38			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	10/17/11
Project:	CTO WE63	Date Received:	10/20/11
Client Sample ID:	FT-GW430-4145	SDG No.:	C4269
Lab Sample ID:	C4269-05	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG038495.D	1		10/29/11	VG102811

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TENTATIVE IDENTIFIED COMPOUNDS						
67-66-3	Chloroform	0.45	J		3.05	ug/L

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	10/17/11
Project:	CTO WE63	Date Received:	10/20/11
Client Sample ID:	FT-GW430-4145RE	SDG No.:	C4269
Lab Sample ID:	C4269-05RE	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG038525.D	1		11/02/11	VG110211

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	0.5	U	0.2	1	ug/L
75-01-4	Vinyl Chloride	0.5	U	0.34	1	ug/L
75-69-4	Trichlorofluoromethane	0.5	U	0.35	1	ug/L
75-35-4	1,1-Dichloroethene	0.5	U	0.47	1	ug/L
67-64-1	Acetone	2.5	U	0.5	5	ug/L
75-09-2	Methylene Chloride	0.5	U	0.41	1	ug/L
156-60-5	trans-1,2-Dichloroethene	0.5	U	0.41	1	ug/L
75-34-3	1,1-Dichloroethane	0.5	U	0.36	1	ug/L
78-93-3	2-Butanone	2.5	U	1.3	5	ug/L
156-59-2	cis-1,2-Dichloroethene	0.5	U	0.35	1	ug/L
71-55-6	1,1,1-Trichloroethane	0.5	U	0.4	1	ug/L
71-43-2	Benzene	0.5	U	0.32	1	ug/L
107-06-2	1,2-Dichloroethane	0.5	U	0.48	1	ug/L
79-01-6	Trichloroethene	0.5	U	0.28	1	ug/L
108-88-3	Toluene	0.5	U	0.37	1	ug/L
79-00-5	1,1,2-Trichloroethane	0.5	U	0.38	1	ug/L
127-18-4	Tetrachloroethene	0.5	U	0.27	1	ug/L
100-41-4	Ethyl Benzene	0.5	U	0.2	1	ug/L
179601-23-1	m/p-Xylenes	1	U	0.95	2	ug/L
95-47-6	o-Xylene	0.5	U	0.43	1	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	0.5	U	0.31	1	ug/L
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	50.9		70 - 120	102%	SPK: 50
1868-53-7	Dibromofluoromethane	48.2		85 - 115	96%	SPK: 50
2037-26-5	Toluene-d8	43		85 - 120	86%	SPK: 50
460-00-4	4-Bromofluorobenzene	45.9		75 - 120	92%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	344400	3.91			
540-36-3	1,4-Difluorobenzene	661159	4.72			
3114-55-4	Chlorobenzene-d5	651722	9.68			
3855-82-1	1,4-Dichlorobenzene-d4	289240	13.38			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	10/17/11
Project:	CTO WE63	Date Received:	10/20/11
Client Sample ID:	FT-GW430-5155	SDG No.:	C4269
Lab Sample ID:	C4269-04	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG038494.D	1		10/29/11	VG102811

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	0.5	U	0.2	1	ug/L
75-01-4	Vinyl Chloride	0.5	U	0.34	1	ug/L
75-69-4	Trichlorofluoromethane	0.5	U	0.35	1	ug/L
75-35-4	1,1-Dichloroethene	0.5	U	0.47	1	ug/L
67-64-1	Acetone	2.5	U	0.5	5	ug/L
75-09-2	Methylene Chloride	0.5	U	0.41	1	ug/L
156-60-5	trans-1,2-Dichloroethene	0.5	U	0.41	1	ug/L
75-34-3	1,1-Dichloroethane	0.5	U	0.36	1	ug/L
78-93-3	2-Butanone	2.5	U	1.3	5	ug/L
156-59-2	cis-1,2-Dichloroethene	0.5	U	0.35	1	ug/L
71-55-6	1,1,1-Trichloroethane	0.5	U	0.4	1	ug/L
71-43-2	Benzene	0.5	U	0.32	1	ug/L
107-06-2	1,2-Dichloroethane	0.5	U	0.48	1	ug/L
79-01-6	Trichloroethene	0.5	U	0.28	1	ug/L
108-88-3	Toluene	0.5	U	0.37	1	ug/L
79-00-5	1,1,2-Trichloroethane	0.5	U	0.38	1	ug/L
127-18-4	Tetrachloroethene	0.5	U	0.27	1	ug/L
100-41-4	Ethyl Benzene	0.5	U	0.2	1	ug/L
179601-23-1	m/p-Xylenes	1	U	0.95	2	ug/L
95-47-6	o-Xylene	0.5	U	0.43	1	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	0.5	U	0.31	1	ug/L
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	47.6		70 - 120	95%	SPK: 50
1868-53-7	Dibromofluoromethane	47.6		85 - 115	95%	SPK: 50
2037-26-5	Toluene-d8	38.9	*	85 - 120	78%	SPK: 50
460-00-4	4-Bromofluorobenzene	44.7		75 - 120	89%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	539281	3.91			
540-36-3	1,4-Difluorobenzene	1004960	4.72			
3114-55-4	Chlorobenzene-d5	1011870	9.68			
3855-82-1	1,4-Dichlorobenzene-d4	472518	13.38			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	10/17/11
Project:	CTO WE63	Date Received:	10/20/11
Client Sample ID:	FT-GW430-5155	SDG No.:	C4269
Lab Sample ID:	C4269-04	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG038494.D	1		10/29/11	VG102811

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TENTATIVE IDENTIFIED COMPOUNDS						
67-66-3	Chloroform	0.64	J		3.06	ug/L

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	10/17/11
Project:	CTO WE63	Date Received:	10/20/11
Client Sample ID:	FT-GW430-5155RE	SDG No.:	C4269
Lab Sample ID:	C4269-04RE	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG038526.D	1		11/02/11	VG110211

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	0.5	U	0.2	1	ug/L
75-01-4	Vinyl Chloride	0.5	U	0.34	1	ug/L
75-69-4	Trichlorofluoromethane	0.5	U	0.35	1	ug/L
75-35-4	1,1-Dichloroethene	0.5	U	0.47	1	ug/L
67-64-1	Acetone	2.5	U	0.5	5	ug/L
75-09-2	Methylene Chloride	0.5	U	0.41	1	ug/L
156-60-5	trans-1,2-Dichloroethene	0.5	U	0.41	1	ug/L
75-34-3	1,1-Dichloroethane	0.5	U	0.36	1	ug/L
78-93-3	2-Butanone	2.5	U	1.3	5	ug/L
156-59-2	cis-1,2-Dichloroethene	0.5	U	0.35	1	ug/L
71-55-6	1,1,1-Trichloroethane	0.5	U	0.4	1	ug/L
71-43-2	Benzene	0.5	U	0.32	1	ug/L
107-06-2	1,2-Dichloroethane	0.5	U	0.48	1	ug/L
79-01-6	Trichloroethene	0.5	U	0.28	1	ug/L
108-88-3	Toluene	0.5	U	0.37	1	ug/L
79-00-5	1,1,2-Trichloroethane	0.5	U	0.38	1	ug/L
127-18-4	Tetrachloroethene	0.5	U	0.27	1	ug/L
100-41-4	Ethyl Benzene	0.5	U	0.2	1	ug/L
179601-23-1	m/p-Xylenes	1	U	0.95	2	ug/L
95-47-6	o-Xylene	0.5	U	0.43	1	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	0.5	U	0.31	1	ug/L
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	50.5		70 - 120	101%	SPK: 50
1868-53-7	Dibromofluoromethane	48.5		85 - 115	97%	SPK: 50
2037-26-5	Toluene-d8	44.4		85 - 120	89%	SPK: 50
460-00-4	4-Bromofluorobenzene	43.1		75 - 120	86%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	340787	3.91			
540-36-3	1,4-Difluorobenzene	664451	4.72			
3114-55-4	Chlorobenzene-d5	648708	9.68			
3855-82-1	1,4-Dichlorobenzene-d4	289043	13.38			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	10/17/11
Project:	CTO WE63	Date Received:	10/20/11
Client Sample ID:	FT-GW430-6165	SDG No.:	C4269
Lab Sample ID:	C4269-03	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG038493.D	1		10/29/11	VG102811

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	0.5	U	0.2	1	ug/L
75-01-4	Vinyl Chloride	0.5	U	0.34	1	ug/L
75-69-4	Trichlorofluoromethane	0.5	U	0.35	1	ug/L
75-35-4	1,1-Dichloroethene	0.5	U	0.47	1	ug/L
67-64-1	Acetone	2.5	U	0.5	5	ug/L
75-09-2	Methylene Chloride	0.5	U	0.41	1	ug/L
156-60-5	trans-1,2-Dichloroethene	0.5	U	0.41	1	ug/L
75-34-3	1,1-Dichloroethane	0.5	U	0.36	1	ug/L
78-93-3	2-Butanone	2.5	U	1.3	5	ug/L
156-59-2	cis-1,2-Dichloroethene	0.5	U	0.35	1	ug/L
71-55-6	1,1,1-Trichloroethane	0.5	U	0.4	1	ug/L
71-43-2	Benzene	0.5	U	0.32	1	ug/L
107-06-2	1,2-Dichloroethane	0.5	U	0.48	1	ug/L
79-01-6	Trichloroethene	0.5	U	0.28	1	ug/L
108-88-3	Toluene	0.5	U	0.37	1	ug/L
79-00-5	1,1,2-Trichloroethane	0.5	U	0.38	1	ug/L
127-18-4	Tetrachloroethene	0.5	U	0.27	1	ug/L
100-41-4	Ethyl Benzene	0.5	U	0.2	1	ug/L
179601-23-1	m/p-Xylenes	1	U	0.95	2	ug/L
95-47-6	o-Xylene	0.5	U	0.43	1	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	0.5	U	0.31	1	ug/L
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	47.9		70 - 120	96%	SPK: 50
1868-53-7	Dibromofluoromethane	47.4		85 - 115	95%	SPK: 50
2037-26-5	Toluene-d8	42.6		85 - 120	85%	SPK: 50
460-00-4	4-Bromofluorobenzene	46.2		75 - 120	92%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	548888	3.91			
540-36-3	1,4-Difluorobenzene	1029650	4.72			
3114-55-4	Chlorobenzene-d5	1030210	9.69			
3855-82-1	1,4-Dichlorobenzene-d4	457190	13.38			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	10/17/11
Project:	CTO WE63	Date Received:	10/20/11
Client Sample ID:	FT-GW430-6165	SDG No.:	C4269
Lab Sample ID:	C4269-03	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG038493.D	1		10/29/11	VG102811

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TENTATIVE IDENTIFIED COMPOUNDS						
67-66-3	Chloroform	0.75	J		3.06	ug/L

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	10/17/11
Project:	CTO WE63	Date Received:	10/20/11
Client Sample ID:	FT-GW430-7175	SDG No.:	C4269
Lab Sample ID:	C4269-02	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG038492.D	1		10/29/11	VG102811

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	0.5	U	0.2	1	ug/L
75-01-4	Vinyl Chloride	0.5	U	0.34	1	ug/L
75-69-4	Trichlorofluoromethane	0.5	U	0.35	1	ug/L
75-35-4	1,1-Dichloroethene	0.5	U	0.47	1	ug/L
67-64-1	Acetone	2.5	U	0.5	5	ug/L
75-09-2	Methylene Chloride	0.5	U	0.41	1	ug/L
156-60-5	trans-1,2-Dichloroethene	0.5	U	0.41	1	ug/L
75-34-3	1,1-Dichloroethane	0.5	U	0.36	1	ug/L
78-93-3	2-Butanone	2.5	U	1.3	5	ug/L
156-59-2	cis-1,2-Dichloroethene	0.5	U	0.35	1	ug/L
71-55-6	1,1,1-Trichloroethane	0.5	U	0.4	1	ug/L
71-43-2	Benzene	0.5	U	0.32	1	ug/L
107-06-2	1,2-Dichloroethane	0.5	U	0.48	1	ug/L
79-01-6	Trichloroethene	0.5	U	0.28	1	ug/L
108-88-3	Toluene	0.5	U	0.37	1	ug/L
79-00-5	1,1,2-Trichloroethane	0.5	U	0.38	1	ug/L
127-18-4	Tetrachloroethene	0.5	U	0.27	1	ug/L
100-41-4	Ethyl Benzene	0.5	U	0.2	1	ug/L
179601-23-1	m/p-Xylenes	1	U	0.95	2	ug/L
95-47-6	o-Xylene	0.5	U	0.43	1	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	0.5	U	0.31	1	ug/L
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	47.2		70 - 120	94%	SPK: 50
1868-53-7	Dibromofluoromethane	48.5		85 - 115	97%	SPK: 50
2037-26-5	Toluene-d8	41.2	*	85 - 120	82%	SPK: 50
460-00-4	4-Bromofluorobenzene	44.7		75 - 120	89%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	563341	3.91			
540-36-3	1,4-Difluorobenzene	1042000	4.72			
3114-55-4	Chlorobenzene-d5	1061770	9.68			
3855-82-1	1,4-Dichlorobenzene-d4	488786	13.38			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	10/17/11
Project:	CTO WE63	Date Received:	10/20/11
Client Sample ID:	FT-GW430-7175	SDG No.:	C4269
Lab Sample ID:	C4269-02	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG038492.D	1		10/29/11	VG102811

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TENTATIVE IDENTIFIED COMPOUNDS						
74-87-3	Chloromethane	0.45	J		0.86	ug/L
67-66-3	Chloroform	0.71	J		3.06	ug/L
91-20-3	Naphthalene	1.2	J		16.92	ug/L

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	10/17/11
Project:	CTO WE63	Date Received:	10/20/11
Client Sample ID:	FT-GW430-7175RE	SDG No.:	C4269
Lab Sample ID:	C4269-02RE	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG038523.D	1		11/02/11	VG110211

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	0.5	U	0.2	1	ug/L
75-01-4	Vinyl Chloride	0.5	U	0.34	1	ug/L
75-69-4	Trichlorofluoromethane	0.5	U	0.35	1	ug/L
75-35-4	1,1-Dichloroethene	0.5	U	0.47	1	ug/L
67-64-1	Acetone	2.5	U	0.5	5	ug/L
75-09-2	Methylene Chloride	0.5	U	0.41	1	ug/L
156-60-5	trans-1,2-Dichloroethene	0.5	U	0.41	1	ug/L
75-34-3	1,1-Dichloroethane	0.5	U	0.36	1	ug/L
78-93-3	2-Butanone	2.5	U	1.3	5	ug/L
156-59-2	cis-1,2-Dichloroethene	0.5	U	0.35	1	ug/L
71-55-6	1,1,1-Trichloroethane	0.5	U	0.4	1	ug/L
71-43-2	Benzene	0.5	U	0.32	1	ug/L
107-06-2	1,2-Dichloroethane	0.5	U	0.48	1	ug/L
79-01-6	Trichloroethene	0.5	U	0.28	1	ug/L
108-88-3	Toluene	0.5	U	0.37	1	ug/L
79-00-5	1,1,2-Trichloroethane	0.5	U	0.38	1	ug/L
127-18-4	Tetrachloroethene	0.5	U	0.27	1	ug/L
100-41-4	Ethyl Benzene	0.5	U	0.2	1	ug/L
179601-23-1	m/p-Xylenes	1	U	0.95	2	ug/L
95-47-6	o-Xylene	0.5	U	0.43	1	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	0.5	U	0.31	1	ug/L
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	50.4		70 - 120	101%	SPK: 50
1868-53-7	Dibromofluoromethane	47.2		85 - 115	94%	SPK: 50
2037-26-5	Toluene-d8	44.5		85 - 120	89%	SPK: 50
460-00-4	4-Bromofluorobenzene	45.5		75 - 120	91%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	344212	3.9			
540-36-3	1,4-Difluorobenzene	663879	4.72			
3114-55-4	Chlorobenzene-d5	636574	9.68			
3855-82-1	1,4-Dichlorobenzene-d4	289105	13.38			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	10/07/11
Project:	CTO WE63	Date Received:	10/20/11
Client Sample ID:	FT-TB02-20111007	SDG No.:	C4269
Lab Sample ID:	C4269-01	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG038320.D	1		10/21/11	VG102111

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	0.5	U	0.2	1	ug/L
75-01-4	Vinyl Chloride	0.5	U	0.34	1	ug/L
75-69-4	Trichlorofluoromethane	0.5	U	0.35	1	ug/L
75-35-4	1,1-Dichloroethene	0.5	U	0.47	1	ug/L
67-64-1	Acetone	2.5	U	0.5	5	ug/L
75-09-2	Methylene Chloride	0.5	U	0.41	1	ug/L
156-60-5	trans-1,2-Dichloroethene	0.5	U	0.41	1	ug/L
75-34-3	1,1-Dichloroethane	0.5	U	0.36	1	ug/L
78-93-3	2-Butanone	2.5	U	1.3	5	ug/L
156-59-2	cis-1,2-Dichloroethene	0.5	U	0.35	1	ug/L
71-55-6	1,1,1-Trichloroethane	0.5	U	0.4	1	ug/L
71-43-2	Benzene	0.5	U	0.32	1	ug/L
107-06-2	1,2-Dichloroethane	0.5	U	0.48	1	ug/L
79-01-6	Trichloroethene	0.5	U	0.28	1	ug/L
108-88-3	Toluene	0.5	U	0.37	1	ug/L
79-00-5	1,1,2-Trichloroethane	0.5	U	0.38	1	ug/L
127-18-4	Tetrachloroethene	0.5	U	0.27	1	ug/L
100-41-4	Ethyl Benzene	0.5	U	0.2	1	ug/L
179601-23-1	m/p-Xylenes	1	U	0.95	2	ug/L
95-47-6	o-Xylene	0.5	U	0.43	1	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	0.5	U	0.31	1	ug/L
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	56.2		70 - 120	112%	SPK: 50
1868-53-7	Dibromofluoromethane	54.8		85 - 115	110%	SPK: 50
2037-26-5	Toluene-d8	43.4		85 - 120	87%	SPK: 50
460-00-4	4-Bromofluorobenzene	41.2		75 - 120	82%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	503586	3.92			
540-36-3	1,4-Difluorobenzene	903779	4.74			
3114-55-4	Chlorobenzene-d5	752177	9.69			
3855-82-1	1,4-Dichlorobenzene-d4	336383	13.4			

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Hit Summary Sheet
SW-846

SDG No.: **C4269**

Client: **Tetra Tech NUS, Inc.**

Sample ID	Client ID		Parameter		Concentration	C	RDL	MDL	Units
Client ID:	**FT-GW430-4145**								
C4269-05	FT-GW430-4145	WATER	Chloroform	*	0.45	J	1.0	0.34	ug/L
			Total Tics :			**0.45**			
			Total Concentration:			**0.45**			
Client ID:	**FT-GW430-5155**								
C4269-04	FT-GW430-5155	WATER	Chloroform	*	0.64	J	1.0	0.34	ug/L
			Total Tics :			**0.64**			
			Total Concentration:			**0.64**			
Client ID:	**FT-GW430-6165**								
C4269-03	FT-GW430-6165	WATER	Chloroform	*	0.75	J	1.0	0.34	ug/L
			Total Tics :			**0.75**			
			Total Concentration:			**0.75**			
Client ID:	**FT-GW430-7175**								
C4269-02	FT-GW430-7175	WATER	Chloromethane	*	0.45	J	1.0	0.20	ug/L
C4269-02	FT-GW430-7175	WATER	Chloroform	*	0.71	J	1.0	0.34	ug/L
C4269-02	FT-GW430-7175	WATER	Naphthalene	*	1.20	J	1.0	0.20	ug/L
			Total Tics :			**2.36**			
			Total Concentration:			**2.36**			
Client ID:	**FT-MW03S-20111018**								
C4269-08	FT-MW03S-20111018	WATER	Trichloroethene		3.20		1.0	0.28	ug/L
			Total Voc :			**3.20**			
			Total Concentration:			**3.20**			

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DATA PACKAGE

VOLATILE ORGANICS

PROJECT NAME : CTO WE63

TETRA TECH NUS, INC.

661 Anderson Drive

Pittsburgh, Pennsylvania - 15220-2745

Phone No: 4129218361

ORDER ID : C4303

ATTENTION : David Brayack

ACCREDITED IN ACCORDANCE WITH nelac

DoD ELAP

CHEMTECH 284 Sheffield Street, Mountainside, New Jersey 07092 Phone : 908 789 8900 Fax : 908 789 8922

Cover Page

Order ID : C4303

Project ID : CTO WE63

Client : Tetra Tech NUS, Inc.

Lab Sample Number	Client Sample Number
C4303-01	FT-TB03-20111011
C4303-02	FT-FB02-20111020
C4303-03	FT-GW431-7175
C4303-04	FT-GW431-6165
C4303-05	FT-GW431-3135
C4303-06	C4303-05MS
C4303-07	C4303-05MSD
C4303-08	FT-RB02-20111020
C4303-09	FT-GW431-5155
C4303-10	FT-GW431-4145
C4303-11	FT-GW431-2125
C4303-12	FT-GW432-7175
C4303-13	FT-GW432-6165
C4303-14	FT-GW432-3135
C4303-15	FT-DUP03-20111020
C4303-16	FT-GW432-5155
C4303-17	FT-GW432-4145
C4303-18	FT-GW432-2630
C4303-19	FT-DUP04-20111021
C4303-20	FT-GW433-2630
C4303-21	FT-GW433-3135

I certify that the data package is in compliance with the terms and conditions of the contract,both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hard copy data package has been authorized by the laboratory manager or his designee, as verified by the following signature.

Signature : _____

NYDOH CERTIFICATION NO - 11376

NJDEP CERTIFICATION NO - 20012

Table of Contents

DATA SUMMARY 9

VOLATILES DATA 124

VOLATILES QC DATA 125

VOLATILES SAMPLE DATA 158

VOLATILES CALIBRATION DATA 774

VOLATILES RAW QC DATA 929

VOLATILES MISCELLANEOUSDATA 1121

SHIPPING AND RECEIVING DOCUMENTATION 1163

END OF ANALYTICAL RESULTS 1168

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CASE NARRATIVE

Tetra Tech NUS, Inc.
Project Name: CTO WE63
Project # N/A
Chemtech Project # C4303
Test Name: VOCMS Group1

A. Number of Samples and Date of Receipt:
21 Water samples were received on 10/22/2011.

B. Parameters
According to the Chain of Custody document, the following analyses were requested: VOCMS Group1. This data package contains results for VOCMS Group1.

C. Analytical Techniques:
The analysis performed on instrument MSVOA_G were done using GC column RTX-VMS which is 20 meters, 0.18 mm id, 1.0 um df, Restek Cat. #49914. The Trap was supplied by OI Analytical, OI #10 Trap , OI Eclipse 4660 Concentrator.The analysis of VOCMS Group1 was based on method 8260.

D. QA/ QC Samples:
The Holding Times were met for First analysis of all the samples. The re-analysis was outside hold time.
The Surrogate recoveries met the acceptable criteria except for following:
FT-GW431-7175 [Toluene-d8 - 78%],
FT-GW431-6165 [Toluene-d8 - 79%],
FT-GW431-3135RE [Toluene-d8 - 82%],
FT-GW431-3135MS [Toluene-d8 - 73%],
FT-GW431-3135MSD [Toluene-d8 - 76%],
FT-GW431-5155 [Toluene-d8 - 73%],
FT-GW431-4145 [Toluene-d8 - 73%],
FT-GW431-2125 [Toluene-d8 - 80%],
FT-GW432-7175 [Toluene-d8 - 74%],
FT-GW432-6165 [Toluene-d8 - 72%],
FT-GW432-3135 [Toluene-d8 - 70%],
FT-DUP03-20111020 [Toluene-d8 - 70%],
FT-GW432-5155 [Toluene-d8 - 71%],
FT-GW432-4145 [Toluene-d8 - 70%],
FT-GW432-2630 [Toluene-d8 - 74%],
FT-DUP04-20111021 [Toluene-d8 - 78%],
FT-DUP04-20111021RE [Toluene-d8 - 83%],
FT-GW433-2630 [Toluene-d8 - 80%],
FT-GW433-2630RE [Toluene-d8 - 80%],
FT-GW433-3135 [Toluene-d8 - 82%],
Samples did not meet the DOD limit but the recovery was within In-house limits

The in house limits are, 4-Bromofluorobenzene (59-135), Toluene-d8 (66-126), 1,2-Dichloroethane-d4 (61-142) , Dibromofluoromethane (70-134) .
Sample FT-GW431-3135 [Toluene-d8 - 60%], did not meet in-house limit, so this sample was re-analyzed.
The Internal Standards Areas met the acceptable requirements.
The Retention Times were acceptable for all samples.
The MS recoveries met the requirements for all compounds.
The MSD recoveries met the acceptable requirements.
The RPD recoveries met criteria.
The Blank Spike for {BSG1102W3} with File ID: VG038538.D met requirements for all samples except for 1,1,1-Trichloroethane[135%], 1,1-Dichloroethane[140%], Acetone[150%], Benzene[130%], cis-1,2-Dichloroethene[135%] and Methylene Chloride[185%] .
The Blank analysis did not indicate the presence of lab contamination.
The Initial Calibration met the requirements.
The Continuous Calibration File ID VG038535.D met the requirements except for Dichlorodifluoromethane,Acetone,Methylene Chloride,2-Butanone,Benzene and Tetrachloroethene .
The Continuous Calibration File ID VG038559.D met the requirements except for Acetone, Methylene Chloride and 2-Butanone.
The Continuous Calibration File ID VG038586.D met the requirements except for Dichlorodifluoromethane (20.5%). It is failing marginally.
The Tuning criteria met requirements.

E. Additional Comments:
Please use %D calculated based on Avg RF and CCRF for all compounds using Average Response Factor when the %RSD value for a compound is <15% for the Initial Calibration curve and use %D calculated based on Amount added and Calculated amount for all compounds using Linear Regression when the %RSD value for a compound is > 15% for the Initial Calibration curve for SW-846 analysis.

F. Manual Integration Comments:
Please refer to the Manual integration Report included with the Run Logs for information on the manual integrations performed.

I certify that the data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. The laboratory manager or his designee, as verified by the following signature has authorized release of the data contained in this hard copy data package.

Signature_____

I Mildred V Reyes, as the designated Quality Assurance ~~Officer,~~ Supervisor hereby attest that all electronic deliverables have been thoroughly reviewed and are in agreement with the associated hardcopy data. The enclosed electronic files have been reviewed for accuracy (including significant figures), completeness and format. The laboratory will be responsible for any labor time necessary to correct enclosed electronic deliverables that have been found to be in error. I can be reached at (908) 789-8900 if there are any questions or problems with the enclosed electronic deliverables.

Signature: Mildred V Reyes Title: DA/QC Supervisor Date: 11/28/11

CHEMTECH

284 Sheffield Street Mountainside NJ 07092
Tel. 908-789-8900 Fax: 908-789-8922

DATA REPORTING QUALIFIERS- ORGANIC

For reporting results, the following " Result Qualifiers" are used:

Value	If the result is a value greater than or equal to the detection limit, report the value
U	Indicates the compound was analyzed for but was not detected. Report the minimum detection limit for the sample with the U. This is the detection limit attainable for this particular sample based on any concentration or dilution that may have been required.
ND	Indicates the compound was analyzed for but was not detected
J	Indicates an estimated value**.** This flag is used: (1) When estimating a concentration for a tentatively identified compound (library search hits, where a 1:1 response is assumed.) (2) When the mass spectral data indicated the identification, however the result was less than the specified detection limit greater than zero. If the detection limit was 10ug/L, and a concentration of 3ug/L was calculated, report as 3 J.
B	Indicates the analyte was found in the blank as well as the sample.
E	Indicates the analyte 's concentration exceeds the calibrated range of the instrument for that specific analysis.
D	This flag identifies all compounds identified in an analysis at a secondary dilution factor.
P	This flag is used for Pesticide/PCB target analyte when there is >25% difference for detected concentrations between the two GC columns.
N	This flag indicates presumptive evidence of a compound. This is only used for tentatively identified compounds (TICs), where the identification is based on a mass spectral library search. For generic characterization of a TIC, such as chlorinated hydrocarbon, the flag is not used.
A	This flag indicates that a Tentatively Identified Compound is a suspected Aldol-condensation product.

APPENDIX A

QA REVIEW GENERAL DOCUMENTATION

Project #:_C4303_____

Completed

For thorough review, the report must have the following:

GENERAL:

Are all original paperwork present (chain of custody, record of communication, airbill, sample management lab chronicle, login page) ___✓_____
Check chain-of-custody for proper relinquish/return of samples ____✓_____
Is the chain of custody signed and complete ____✓_____
Check internal chain-of-custody for proper relinquish/return of samples /sample extracts _____✓____
Collect information for each project id from server. Were all requirements followed _____✓_____

COVER PAGE:

Do numbers of samples correspond to the number of samples in the Chain of Custody and on login page ___✓_____
Do lab numbers and client Ids on cover page agree with the Chain of Custody ____✓_____

CHAIN OF CUSTODY:

Do requested analyses on Chain of Custody agree with form I results ___✓_____
Do requested analyses on Chain of Custody agree with the log-in page ____✓_____
Were the correct method log-in for analysis according to the Analytical Request and Chain of Custody ____✓_____
Were the samples received within hold time ____✓_____
Were any problems found with the samples at arrival recorded in the Sample Management Laboratory Chronicle ____✓_____

ANALYTICAL:

Was method requirement followed? _____✓_____
Was client requirement followed? ____✓_____
Does the case narrative summarize all QC failure? _____✓_____
All runlogs reviewed for manual integration requirements _____✓_____
All manual calculations and /or hand notations verified _____✓_____

1st Level QA Review Signature:__ _____ Date:_11/27/11_____

2nd Level QA Review Signature:_____ Date:_____

DATA SUMMARY

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	10/20/11
Project:	CTO WE63	Date Received:	10/22/11
Client Sample ID:	FT-GW431-2125	SDG No.:	c4303
Lab Sample ID:	C4303-11	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG038546.D	1		11/03/11	VG110211

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	0.5	U	0.2	1	ug/L
75-01-4	Vinyl Chloride	0.5	U	0.34	1	ug/L
75-69-4	Trichlorofluoromethane	0.5	U	0.35	1	ug/L
75-35-4	1,1-Dichloroethene	0.5	U	0.47	1	ug/L
67-64-1	Acetone	2.5	U	0.5	5	ug/L
75-09-2	Methylene Chloride	0.5	U	0.41	1	ug/L
156-60-5	trans-1,2-Dichloroethene	0.5	U	0.41	1	ug/L
75-34-3	1,1-Dichloroethane	0.5	U	0.36	1	ug/L
78-93-3	2-Butanone	2.5	U	1.3	5	ug/L
156-59-2	cis-1,2-Dichloroethene	0.5	U	0.35	1	ug/L
71-55-6	1,1,1-Trichloroethane	0.5	U	0.4	1	ug/L
71-43-2	Benzene	0.5	U	0.32	1	ug/L
107-06-2	1,2-Dichloroethane	0.5	U	0.48	1	ug/L
79-01-6	Trichloroethene	0.5	U	0.28	1	ug/L
108-88-3	Toluene	0.5	U	0.37	1	ug/L
79-00-5	1,1,2-Trichloroethane	0.5	U	0.38	1	ug/L
127-18-4	Tetrachloroethene	0.5	U	0.27	1	ug/L
100-41-4	Ethyl Benzene	0.5	U	0.2	1	ug/L
179601-23-1	m/p-Xylenes	1	U	0.95	2	ug/L
95-47-6	o-Xylene	0.5	U	0.43	1	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	0.5	U	0.31	1	ug/L
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	54		70 - 120	108%	SPK: 50
1868-53-7	Dibromofluoromethane	50		85 - 115	100%	SPK: 50
2037-26-5	Toluene-d8	39.8	*	85 - 120	80%	SPK: 50
460-00-4	4-Bromofluorobenzene	42.8		75 - 120	86%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	313263	3.93			
540-36-3	1,4-Difluorobenzene	615085	4.75			
3114-55-4	Chlorobenzene-d5	584846	9.7			
3855-82-1	1,4-Dichlorobenzene-d4	256657	13.4			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	10/20/11
Project:	CTO WE63	Date Received:	10/22/11
Client Sample ID:	FT-GW431-2125	SDG No.:	c4303
Lab Sample ID:	C4303-11	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG038546.D	1		11/03/11	VG110211

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TENTATIVE IDENTIFIED COMPOUNDS						
67-66-3	Chloroform	0.55	J		3.07	ug/L

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	10/20/11
Project:	CTO WE63	Date Received:	10/22/11
Client Sample ID:	FT-GW431-3135	SDG No.:	c4303
Lab Sample ID:	C4303-05	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG038572.D	1		11/03/11	VG110311

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	0.5	U	0.2	1	ug/L
75-01-4	Vinyl Chloride	0.5	U	0.34	1	ug/L
75-69-4	Trichlorofluoromethane	0.5	U	0.35	1	ug/L
75-35-4	1,1-Dichloroethene	0.5	U	0.47	1	ug/L
67-64-1	Acetone	2.5	U	0.5	5	ug/L
75-09-2	Methylene Chloride	0.5	U	0.41	1	ug/L
156-60-5	trans-1,2-Dichloroethene	0.5	U	0.41	1	ug/L
75-34-3	1,1-Dichloroethane	0.5	U	0.36	1	ug/L
78-93-3	2-Butanone	2.5	U	1.3	5	ug/L
156-59-2	cis-1,2-Dichloroethene	0.5	U	0.35	1	ug/L
71-55-6	1,1,1-Trichloroethane	0.5	U	0.4	1	ug/L
71-43-2	Benzene	0.5	U	0.32	1	ug/L
107-06-2	1,2-Dichloroethane	0.5	U	0.48	1	ug/L
79-01-6	Trichloroethene	0.5	U	0.28	1	ug/L
108-88-3	Toluene	0.5	U	0.37	1	ug/L
79-00-5	1,1,2-Trichloroethane	0.5	U	0.38	1	ug/L
127-18-4	Tetrachloroethene	0.5	U	0.27	1	ug/L
100-41-4	Ethyl Benzene	0.5	U	0.2	1	ug/L
179601-23-1	m/p-Xylenes	1	U	0.95	2	ug/L
95-47-6	o-Xylene	0.5	U	0.43	1	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	0.5	U	0.31	1	ug/L
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	56.1		70 - 120	112%	SPK: 50
1868-53-7	Dibromofluoromethane	49.6		85 - 115	99%	SPK: 50
2037-26-5	Toluene-d8	29.8	*	85 - 120	60%	SPK: 50
460-00-4	4-Bromofluorobenzene	38.9		75 - 120	78%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	329431	3.93			
540-36-3	1,4-Difluorobenzene	627190	4.75			
3114-55-4	Chlorobenzene-d5	544143	9.7			
3855-82-1	1,4-Dichlorobenzene-d4	245920	13.4			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	10/20/11
Project:	CTO WE63	Date Received:	10/22/11
Client Sample ID:	FT-GW431-3135RE	SDG No.:	c4303
Lab Sample ID:	C4303-05RE	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG038597.D	1		11/04/11	VG110411

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	0.5	U	0.2	1	ug/L
75-01-4	Vinyl Chloride	0.5	U	0.34	1	ug/L
75-69-4	Trichlorofluoromethane	0.5	U	0.35	1	ug/L
75-35-4	1,1-Dichloroethene	0.5	U	0.47	1	ug/L
67-64-1	Acetone	2.5	U	0.5	5	ug/L
75-09-2	Methylene Chloride	0.5	U	0.41	1	ug/L
156-60-5	trans-1,2-Dichloroethene	0.5	U	0.41	1	ug/L
75-34-3	1,1-Dichloroethane	0.5	U	0.36	1	ug/L
78-93-3	2-Butanone	2.5	U	1.3	5	ug/L
156-59-2	cis-1,2-Dichloroethene	0.5	U	0.35	1	ug/L
71-55-6	1,1,1-Trichloroethane	0.5	U	0.4	1	ug/L
71-43-2	Benzene	0.5	U	0.32	1	ug/L
107-06-2	1,2-Dichloroethane	0.5	U	0.48	1	ug/L
79-01-6	Trichloroethene	0.5	U	0.28	1	ug/L
108-88-3	Toluene	0.5	U	0.37	1	ug/L
79-00-5	1,1,2-Trichloroethane	0.5	U	0.38	1	ug/L
127-18-4	Tetrachloroethene	0.5	U	0.27	1	ug/L
100-41-4	Ethyl Benzene	0.5	U	0.2	1	ug/L
179601-23-1	m/p-Xylenes	1	U	0.95	2	ug/L
95-47-6	o-Xylene	0.5	U	0.43	1	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	0.5	U	0.31	1	ug/L
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	53.2		70 - 120	106%	SPK: 50
1868-53-7	Dibromofluoromethane	47		85 - 115	94%	SPK: 50
2037-26-5	Toluene-d8	41	*	85 - 120	82%	SPK: 50
460-00-4	4-Bromofluorobenzene	43.2		75 - 120	86%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	465621	3.92			
540-36-3	1,4-Difluorobenzene	928865	4.73			
3114-55-4	Chlorobenzene-d5	894656	9.69			
3855-82-1	1,4-Dichlorobenzene-d4	391782	13.39			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	10/20/11
Project:	CTO WE63	Date Received:	10/22/11
Client Sample ID:	FT-GW431-4145	SDG No.:	c4303
Lab Sample ID:	C4303-10	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG038545.D	1		11/03/11	VG110211

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	0.5	U	0.2	1	ug/L
75-01-4	Vinyl Chloride	0.5	U	0.34	1	ug/L
75-69-4	Trichlorofluoromethane	0.5	U	0.35	1	ug/L
75-35-4	1,1-Dichloroethene	0.5	U	0.47	1	ug/L
67-64-1	Acetone	2.5	U	0.5	5	ug/L
75-09-2	Methylene Chloride	0.5	U	0.41	1	ug/L
156-60-5	trans-1,2-Dichloroethene	0.5	U	0.41	1	ug/L
75-34-3	1,1-Dichloroethane	0.5	U	0.36	1	ug/L
78-93-3	2-Butanone	2.5	U	1.3	5	ug/L
156-59-2	cis-1,2-Dichloroethene	0.5	U	0.35	1	ug/L
71-55-6	1,1,1-Trichloroethane	0.5	U	0.4	1	ug/L
71-43-2	Benzene	0.5	U	0.32	1	ug/L
107-06-2	1,2-Dichloroethane	0.5	U	0.48	1	ug/L
79-01-6	Trichloroethene	0.5	U	0.28	1	ug/L
108-88-3	Toluene	0.5	U	0.37	1	ug/L
79-00-5	1,1,2-Trichloroethane	0.5	U	0.38	1	ug/L
127-18-4	Tetrachloroethene	0.5	U	0.27	1	ug/L
100-41-4	Ethyl Benzene	0.5	U	0.2	1	ug/L
179601-23-1	m/p-Xylenes	1	U	0.95	2	ug/L
95-47-6	o-Xylene	0.5	U	0.43	1	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	0.5	U	0.31	1	ug/L
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	55.7		70 - 120	111%	SPK: 50
1868-53-7	Dibromofluoromethane	48.3		85 - 115	97%	SPK: 50
2037-26-5	Toluene-d8	36.6	*	85 - 120	73%	SPK: 50
460-00-4	4-Bromofluorobenzene	41.9		75 - 120	84%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	306824	3.93			
540-36-3	1,4-Difluorobenzene	625192	4.74			
3114-55-4	Chlorobenzene-d5	556671	9.71			
3855-82-1	1,4-Dichlorobenzene-d4	255817	13.4			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	10/20/11
Project:	CTO WE63	Date Received:	10/22/11
Client Sample ID:	FT-GW431-4145	SDG No.:	c4303
Lab Sample ID:	C4303-10	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG038545.D	1		11/03/11	VG110211

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TENTATIVE IDENTIFIED COMPOUNDS						
67-66-3	Chloroform	0.51	J		3.07	ug/L

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	10/20/11
Project:	CTO WE63	Date Received:	10/22/11
Client Sample ID:	FT-GW431-5155	SDG No.:	c4303
Lab Sample ID:	C4303-09	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG038544.D	1		11/03/11	VG110211

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	0.5	U	0.2	1	ug/L
75-01-4	Vinyl Chloride	0.5	U	0.34	1	ug/L
75-69-4	Trichlorofluoromethane	0.5	U	0.35	1	ug/L
75-35-4	1,1-Dichloroethene	0.5	U	0.47	1	ug/L
67-64-1	Acetone	2.5	U	0.5	5	ug/L
75-09-2	Methylene Chloride	0.5	U	0.41	1	ug/L
156-60-5	trans-1,2-Dichloroethene	0.5	U	0.41	1	ug/L
75-34-3	1,1-Dichloroethane	0.5	U	0.36	1	ug/L
78-93-3	2-Butanone	2.5	U	1.3	5	ug/L
156-59-2	cis-1,2-Dichloroethene	0.5	U	0.35	1	ug/L
71-55-6	1,1,1-Trichloroethane	0.5	U	0.4	1	ug/L
71-43-2	Benzene	0.5	U	0.32	1	ug/L
107-06-2	1,2-Dichloroethane	0.5	U	0.48	1	ug/L
79-01-6	Trichloroethene	0.5	U	0.28	1	ug/L
108-88-3	Toluene	0.5	U	0.37	1	ug/L
79-00-5	1,1,2-Trichloroethane	0.5	U	0.38	1	ug/L
127-18-4	Tetrachloroethene	0.5	U	0.27	1	ug/L
100-41-4	Ethyl Benzene	0.5	U	0.2	1	ug/L
179601-23-1	m/p-Xylenes	1	U	0.95	2	ug/L
95-47-6	o-Xylene	0.5	U	0.43	1	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	0.5	U	0.31	1	ug/L
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	54.2		70 - 120	108%	SPK: 50
1868-53-7	Dibromofluoromethane	49.5		85 - 115	99%	SPK: 50
2037-26-5	Toluene-d8	36.5	*	85 - 120	73%	SPK: 50
460-00-4	4-Bromofluorobenzene	41.6		75 - 120	83%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	318879	3.94			
540-36-3	1,4-Difluorobenzene	629125	4.75			
3114-55-4	Chlorobenzene-d5	558917	9.7			
3855-82-1	1,4-Dichlorobenzene-d4	246863	13.4			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	10/20/11
Project:	CTO WE63	Date Received:	10/22/11
Client Sample ID:	FT-GW431-5155	SDG No.:	c4303
Lab Sample ID:	C4303-09	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG038544.D	1		11/03/11	VG110211

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TENTATIVE IDENTIFIED COMPOUNDS						
67-66-3	Chloroform	2.1	J		3.07	ug/L

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	10/20/11
Project:	CTO WE63	Date Received:	10/22/11
Client Sample ID:	FT-DUP03-20111020	SDG No.:	c4303
Lab Sample ID:	C4303-15	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG038550.D	1		11/03/11	VG110211

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	0.5	U	0.2	1	ug/L
75-01-4	Vinyl Chloride	0.5	U	0.34	1	ug/L
75-69-4	Trichlorofluoromethane	0.5	U	0.35	1	ug/L
75-35-4	1,1-Dichloroethene	0.5	U	0.47	1	ug/L
67-64-1	Acetone	2.5	U	0.5	5	ug/L
75-09-2	Methylene Chloride	0.5	U	0.41	1	ug/L
156-60-5	trans-1,2-Dichloroethene	0.5	U	0.41	1	ug/L
75-34-3	1,1-Dichloroethane	0.5	U	0.36	1	ug/L
78-93-3	2-Butanone	2.5	U	1.3	5	ug/L
156-59-2	cis-1,2-Dichloroethene	0.5	U	0.35	1	ug/L
71-55-6	1,1,1-Trichloroethane	0.5	U	0.4	1	ug/L
71-43-2	Benzene	0.5	U	0.32	1	ug/L
107-06-2	1,2-Dichloroethane	0.5	U	0.48	1	ug/L
79-01-6	Trichloroethene	0.5	U	0.28	1	ug/L
108-88-3	Toluene	0.5	U	0.37	1	ug/L
79-00-5	1,1,2-Trichloroethane	0.5	U	0.38	1	ug/L
127-18-4	Tetrachloroethene	0.5	U	0.27	1	ug/L
100-41-4	Ethyl Benzene	0.5	U	0.2	1	ug/L
179601-23-1	m/p-Xylenes	1	U	0.95	2	ug/L
95-47-6	o-Xylene	0.5	U	0.43	1	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	0.5	U	0.31	1	ug/L
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	54.5		70 - 120	109%	SPK: 50
1868-53-7	Dibromofluoromethane	50.2		85 - 115	100%	SPK: 50
2037-26-5	Toluene-d8	35	*	85 - 120	70%	SPK: 50
460-00-4	4-Bromofluorobenzene	38.5		75 - 120	77%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	311821	3.93			
540-36-3	1,4-Difluorobenzene	604238	4.74			
3114-55-4	Chlorobenzene-d5	520369	9.7			
3855-82-1	1,4-Dichlorobenzene-d4	232417	13.39			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	10/20/11
Project:	CTO WE63	Date Received:	10/22/11
Client Sample ID:	FT-DUP03-20111020	SDG No.:	c4303
Lab Sample ID:	C4303-15	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG038550.D	1		11/03/11	VG110211

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TENTATIVE IDENTIFIED COMPOUNDS						
67-66-3	Chloroform	1.9	J		3.06	ug/L

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	10/20/11
Project:	CTO WE63	Date Received:	10/22/11
Client Sample ID:	FT-GW431-6165	SDG No.:	c4303
Lab Sample ID:	C4303-04	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG038542.D	1		11/03/11	VG110211

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	0.5	U	0.2	1	ug/L
75-01-4	Vinyl Chloride	0.5	U	0.34	1	ug/L
75-69-4	Trichlorofluoromethane	0.5	U	0.35	1	ug/L
75-35-4	1,1-Dichloroethene	0.5	U	0.47	1	ug/L
67-64-1	Acetone	2.5	U	0.5	5	ug/L
75-09-2	Methylene Chloride	0.5	U	0.41	1	ug/L
156-60-5	trans-1,2-Dichloroethene	0.5	U	0.41	1	ug/L
75-34-3	1,1-Dichloroethane	0.5	U	0.36	1	ug/L
78-93-3	2-Butanone	2.5	U	1.3	5	ug/L
156-59-2	cis-1,2-Dichloroethene	0.5	U	0.35	1	ug/L
71-55-6	1,1,1-Trichloroethane	0.5	U	0.4	1	ug/L
71-43-2	Benzene	0.5	U	0.32	1	ug/L
107-06-2	1,2-Dichloroethane	0.5	U	0.48	1	ug/L
79-01-6	Trichloroethene	0.5	U	0.28	1	ug/L
108-88-3	Toluene	0.5	U	0.37	1	ug/L
79-00-5	1,1,2-Trichloroethane	0.5	U	0.38	1	ug/L
127-18-4	Tetrachloroethene	0.5	U	0.27	1	ug/L
100-41-4	Ethyl Benzene	0.5	U	0.2	1	ug/L
179601-23-1	m/p-Xylenes	1	U	0.95	2	ug/L
95-47-6	o-Xylene	0.5	U	0.43	1	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	0.5	U	0.31	1	ug/L
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	53		70 - 120	106%	SPK: 50
1868-53-7	Dibromofluoromethane	49.6		85 - 115	99%	SPK: 50
2037-26-5	Toluene-d8	39.4	*	85 - 120	79%	SPK: 50
460-00-4	4-Bromofluorobenzene	45.3		75 - 120	91%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	331594	3.93			
540-36-3	1,4-Difluorobenzene	626383	4.74			
3114-55-4	Chlorobenzene-d5	576994	9.7			
3855-82-1	1,4-Dichlorobenzene-d4	276485	13.4			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	10/20/11
Project:	CTO WE63	Date Received:	10/22/11
Client Sample ID:	FT-GW431-6165	SDG No.:	c4303
Lab Sample ID:	C4303-04	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG038542.D	1		11/03/11	VG110211

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TENTATIVE IDENTIFIED COMPOUNDS						
67-66-3	Chloroform	1.1	J		3.07	ug/L

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	10/20/11
Project:	CTO WE63	Date Received:	10/22/11
Client Sample ID:	FT-GW431-7175	SDG No.:	c4303
Lab Sample ID:	C4303-03	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG038541.D	1		11/03/11	VG110211

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	0.5	U	0.2	1	ug/L
75-01-4	Vinyl Chloride	0.5	U	0.34	1	ug/L
75-69-4	Trichlorofluoromethane	0.5	U	0.35	1	ug/L
75-35-4	1,1-Dichloroethene	0.5	U	0.47	1	ug/L
67-64-1	Acetone	2.5	U	0.5	5	ug/L
75-09-2	Methylene Chloride	0.5	U	0.41	1	ug/L
156-60-5	trans-1,2-Dichloroethene	0.5	U	0.41	1	ug/L
75-34-3	1,1-Dichloroethane	0.5	U	0.36	1	ug/L
78-93-3	2-Butanone	2.5	U	1.3	5	ug/L
156-59-2	cis-1,2-Dichloroethene	0.5	U	0.35	1	ug/L
71-55-6	1,1,1-Trichloroethane	0.5	U	0.4	1	ug/L
71-43-2	Benzene	0.5	U	0.32	1	ug/L
107-06-2	1,2-Dichloroethane	0.5	U	0.48	1	ug/L
79-01-6	Trichloroethene	0.5	U	0.28	1	ug/L
108-88-3	Toluene	0.5	U	0.37	1	ug/L
79-00-5	1,1,2-Trichloroethane	0.5	U	0.38	1	ug/L
127-18-4	Tetrachloroethene	0.5	U	0.27	1	ug/L
100-41-4	Ethyl Benzene	0.5	U	0.2	1	ug/L
179601-23-1	m/p-Xylenes	1	U	0.95	2	ug/L
95-47-6	o-Xylene	0.5	U	0.43	1	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	0.5	U	0.31	1	ug/L
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	52.4		70 - 120	105%	SPK: 50
1868-53-7	Dibromofluoromethane	48.8		85 - 115	98%	SPK: 50
2037-26-5	Toluene-d8	39	*	85 - 120	78%	SPK: 50
460-00-4	4-Bromofluorobenzene	42.2		75 - 120	84%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	334271	3.93			
540-36-3	1,4-Difluorobenzene	652183	4.74			
3114-55-4	Chlorobenzene-d5	596837	9.69			
3855-82-1	1,4-Dichlorobenzene-d4	276147	13.39			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	10/20/11
Project:	CTO WE63	Date Received:	10/22/11
Client Sample ID:	FT-GW431-7175	SDG No.:	c4303
Lab Sample ID:	C4303-03	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG038541.D	1		11/03/11	VG110211

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TENTATIVE IDENTIFIED COMPOUNDS						
67-66-3	Chloroform	1.5	J		3.06	ug/L

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	10/21/11
Project:	CTO WE63	Date Received:	10/22/11
Client Sample ID:	FT-GW432-2630	SDG No.:	c4303
Lab Sample ID:	C4303-18	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG038553.D	1		11/03/11	VG110211

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	0.5	U	0.2	1	ug/L
75-01-4	Vinyl Chloride	0.5	U	0.34	1	ug/L
75-69-4	Trichlorofluoromethane	0.5	U	0.35	1	ug/L
75-35-4	1,1-Dichloroethene	0.5	U	0.47	1	ug/L
67-64-1	Acetone	2.5	U	0.5	5	ug/L
75-09-2	Methylene Chloride	0.5	U	0.41	1	ug/L
156-60-5	trans-1,2-Dichloroethene	0.5	U	0.41	1	ug/L
75-34-3	1,1-Dichloroethane	0.5	U	0.36	1	ug/L
78-93-3	2-Butanone	2.5	U	1.3	5	ug/L
156-59-2	cis-1,2-Dichloroethene	0.5	U	0.35	1	ug/L
71-55-6	1,1,1-Trichloroethane	0.5	U	0.4	1	ug/L
71-43-2	Benzene	0.5	U	0.32	1	ug/L
107-06-2	1,2-Dichloroethane	0.5	U	0.48	1	ug/L
79-01-6	Trichloroethene	0.5	U	0.28	1	ug/L
108-88-3	Toluene	0.5	U	0.37	1	ug/L
79-00-5	1,1,2-Trichloroethane	0.5	U	0.38	1	ug/L
127-18-4	Tetrachloroethene	0.5	U	0.27	1	ug/L
100-41-4	Ethyl Benzene	0.5	U	0.2	1	ug/L
179601-23-1	m/p-Xylenes	1	U	0.95	2	ug/L
95-47-6	o-Xylene	0.5	U	0.43	1	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	0.5	U	0.31	1	ug/L
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	55.1		70 - 120	110%	SPK: 50
1868-53-7	Dibromofluoromethane	49.8		85 - 115	100%	SPK: 50
2037-26-5	Toluene-d8	36.8	*	85 - 120	74%	SPK: 50
460-00-4	4-Bromofluorobenzene	38.5		75 - 120	77%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	304164	3.93			
540-36-3	1,4-Difluorobenzene	599051	4.74			
3114-55-4	Chlorobenzene-d5	515832	9.7			
3855-82-1	1,4-Dichlorobenzene-d4	234973	13.39			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	10/20/11
Project:	CTO WE63	Date Received:	10/22/11
Client Sample ID:	FT-GW432-3135	SDG No.:	c4303
Lab Sample ID:	C4303-14	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG038549.D	1		11/03/11	VG110211

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	0.5	U	0.2	1	ug/L
75-01-4	Vinyl Chloride	0.5	U	0.34	1	ug/L
75-69-4	Trichlorofluoromethane	0.5	U	0.35	1	ug/L
75-35-4	1,1-Dichloroethene	0.5	U	0.47	1	ug/L
67-64-1	Acetone	2.5	U	0.5	5	ug/L
75-09-2	Methylene Chloride	0.5	U	0.41	1	ug/L
156-60-5	trans-1,2-Dichloroethene	0.5	U	0.41	1	ug/L
75-34-3	1,1-Dichloroethane	0.5	U	0.36	1	ug/L
78-93-3	2-Butanone	2.5	U	1.3	5	ug/L
156-59-2	cis-1,2-Dichloroethene	0.5	U	0.35	1	ug/L
71-55-6	1,1,1-Trichloroethane	0.5	U	0.4	1	ug/L
71-43-2	Benzene	0.5	U	0.32	1	ug/L
107-06-2	1,2-Dichloroethane	0.5	U	0.48	1	ug/L
79-01-6	Trichloroethene	0.5	U	0.28	1	ug/L
108-88-3	Toluene	0.5	U	0.37	1	ug/L
79-00-5	1,1,2-Trichloroethane	0.5	U	0.38	1	ug/L
127-18-4	Tetrachloroethene	0.5	U	0.27	1	ug/L
100-41-4	Ethyl Benzene	0.5	U	0.2	1	ug/L
179601-23-1	m/p-Xylenes	1	U	0.95	2	ug/L
95-47-6	o-Xylene	0.5	U	0.43	1	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	0.5	U	0.31	1	ug/L
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	55.5		70 - 120	111%	SPK: 50
1868-53-7	Dibromofluoromethane	48.4		85 - 115	97%	SPK: 50
2037-26-5	Toluene-d8	34.8	*	85 - 120	70%	SPK: 50
460-00-4	4-Bromofluorobenzene	39.8		75 - 120	80%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	305057	3.93			
540-36-3	1,4-Difluorobenzene	616035	4.75			
3114-55-4	Chlorobenzene-d5	548248	9.7			
3855-82-1	1,4-Dichlorobenzene-d4	247337	13.4			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	10/21/11
Project:	CTO WE63	Date Received:	10/22/11
Client Sample ID:	FT-GW432-4145	SDG No.:	c4303
Lab Sample ID:	C4303-17	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG038552.D	1		11/03/11	VG110211

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	0.5	U	0.2	1	ug/L
75-01-4	Vinyl Chloride	0.5	U	0.34	1	ug/L
75-69-4	Trichlorofluoromethane	0.5	U	0.35	1	ug/L
75-35-4	1,1-Dichloroethene	0.5	U	0.47	1	ug/L
67-64-1	Acetone	2.5	U	0.5	5	ug/L
75-09-2	Methylene Chloride	0.5	U	0.41	1	ug/L
156-60-5	trans-1,2-Dichloroethene	0.5	U	0.41	1	ug/L
75-34-3	1,1-Dichloroethane	0.5	U	0.36	1	ug/L
78-93-3	2-Butanone	2.5	U	1.3	5	ug/L
156-59-2	cis-1,2-Dichloroethene	0.5	U	0.35	1	ug/L
71-55-6	1,1,1-Trichloroethane	0.5	U	0.4	1	ug/L
71-43-2	Benzene	0.5	U	0.32	1	ug/L
107-06-2	1,2-Dichloroethane	0.5	U	0.48	1	ug/L
79-01-6	Trichloroethene	0.5	U	0.28	1	ug/L
108-88-3	Toluene	0.5	U	0.37	1	ug/L
79-00-5	1,1,2-Trichloroethane	0.5	U	0.38	1	ug/L
127-18-4	Tetrachloroethene	0.5	U	0.27	1	ug/L
100-41-4	Ethyl Benzene	0.5	U	0.2	1	ug/L
179601-23-1	m/p-Xylenes	1	U	0.95	2	ug/L
95-47-6	o-Xylene	0.5	U	0.43	1	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	0.5	U	0.31	1	ug/L
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	54.8		70 - 120	110%	SPK: 50
1868-53-7	Dibromofluoromethane	50.2		85 - 115	100%	SPK: 50
2037-26-5	Toluene-d8	34.9	*	85 - 120	70%	SPK: 50
460-00-4	4-Bromofluorobenzene	39.3		75 - 120	79%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	308982	3.93			
540-36-3	1,4-Difluorobenzene	603602	4.74			
3114-55-4	Chlorobenzene-d5	527840	9.69			
3855-82-1	1,4-Dichlorobenzene-d4	231164	13.39			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	10/21/11
Project:	CTO WE63	Date Received:	10/22/11
Client Sample ID:	FT-GW432-4145	SDG No.:	c4303
Lab Sample ID:	C4303-17	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG038552.D	1		11/03/11	VG110211

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TENTATIVE IDENTIFIED COMPOUNDS						
67-66-3	Chloroform	0.77	J		3.08	ug/L

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	10/21/11
Project:	CTO WE63	Date Received:	10/22/11
Client Sample ID:	FT-GW432-5155	SDG No.:	c4303
Lab Sample ID:	C4303-16	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG038551.D	1		11/03/11	VG110211

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	0.5	U	0.2	1	ug/L
75-01-4	Vinyl Chloride	0.5	U	0.34	1	ug/L
75-69-4	Trichlorofluoromethane	0.5	U	0.35	1	ug/L
75-35-4	1,1-Dichloroethene	0.5	U	0.47	1	ug/L
67-64-1	Acetone	2.5	U	0.5	5	ug/L
75-09-2	Methylene Chloride	0.5	U	0.41	1	ug/L
156-60-5	trans-1,2-Dichloroethene	0.5	U	0.41	1	ug/L
75-34-3	1,1-Dichloroethane	0.5	U	0.36	1	ug/L
78-93-3	2-Butanone	2.5	U	1.3	5	ug/L
156-59-2	cis-1,2-Dichloroethene	0.5	U	0.35	1	ug/L
71-55-6	1,1,1-Trichloroethane	0.5	U	0.4	1	ug/L
71-43-2	Benzene	0.5	U	0.32	1	ug/L
107-06-2	1,2-Dichloroethane	0.5	U	0.48	1	ug/L
79-01-6	Trichloroethene	0.5	U	0.28	1	ug/L
108-88-3	Toluene	0.5	U	0.37	1	ug/L
79-00-5	1,1,2-Trichloroethane	0.5	U	0.38	1	ug/L
127-18-4	Tetrachloroethene	0.5	U	0.27	1	ug/L
100-41-4	Ethyl Benzene	0.5	U	0.2	1	ug/L
179601-23-1	m/p-Xylenes	1	U	0.95	2	ug/L
95-47-6	o-Xylene	0.5	U	0.43	1	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	0.5	U	0.31	1	ug/L
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	55.2		70 - 120	110%	SPK: 50
1868-53-7	Dibromofluoromethane	48.5		85 - 115	97%	SPK: 50
2037-26-5	Toluene-d8	35.6	*	85 - 120	71%	SPK: 50
460-00-4	4-Bromofluorobenzene	40		75 - 120	80%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	301470	3.92			
540-36-3	1,4-Difluorobenzene	597963	4.74			
3114-55-4	Chlorobenzene-d5	509236	9.7			
3855-82-1	1,4-Dichlorobenzene-d4	227428	13.4			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	10/21/11
Project:	CTO WE63	Date Received:	10/22/11
Client Sample ID:	FT-GW432-5155	SDG No.:	c4303
Lab Sample ID:	C4303-16	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG038551.D	1		11/03/11	VG110211

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TENTATIVE IDENTIFIED COMPOUNDS						
67-66-3	Chloroform	3.2	J		3.06	ug/L

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	10/21/11
Project:	CTO WE63	Date Received:	10/22/11
Client Sample ID:	FT-DUP04-20111021	SDG No.:	c4303
Lab Sample ID:	C4303-19	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG038600.D	1		11/04/11	VG110411

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	0.95	J	0.2	1	ug/L
75-01-4	Vinyl Chloride	0.5	U	0.34	1	ug/L
75-69-4	Trichlorofluoromethane	0.5	U	0.35	1	ug/L
75-35-4	1,1-Dichloroethene	0.5	U	0.47	1	ug/L
67-64-1	Acetone	2.5	U	0.5	5	ug/L
75-09-2	Methylene Chloride	5.1		0.41	1	ug/L
156-60-5	trans-1,2-Dichloroethene	0.5	U	0.41	1	ug/L
75-34-3	1,1-Dichloroethane	0.5	U	0.36	1	ug/L
78-93-3	2-Butanone	2.5	U	1.3	5	ug/L
156-59-2	cis-1,2-Dichloroethene	0.5	U	0.35	1	ug/L
71-55-6	1,1,1-Trichloroethane	0.5	U	0.4	1	ug/L
71-43-2	Benzene	0.5	U	0.32	1	ug/L
107-06-2	1,2-Dichloroethane	0.5	U	0.48	1	ug/L
79-01-6	Trichloroethene	0.5	U	0.28	1	ug/L
108-88-3	Toluene	0.5	U	0.37	1	ug/L
79-00-5	1,1,2-Trichloroethane	0.5	U	0.38	1	ug/L
127-18-4	Tetrachloroethene	0.5	U	0.27	1	ug/L
100-41-4	Ethyl Benzene	0.5	U	0.2	1	ug/L
179601-23-1	m/p-Xylenes	1	U	0.95	2	ug/L
95-47-6	o-Xylene	0.5	U	0.43	1	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	0.5	U	0.31	1	ug/L
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	54		70 - 120	108%	SPK: 50
1868-53-7	Dibromofluoromethane	47.9		85 - 115	96%	SPK: 50
2037-26-5	Toluene-d8	38.8	*	85 - 120	78%	SPK: 50
460-00-4	4-Bromofluorobenzene	43.2		75 - 120	86%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	451671	3.91			
540-36-3	1,4-Difluorobenzene	898250	4.73			
3114-55-4	Chlorobenzene-d5	847116	9.69			
3855-82-1	1,4-Dichlorobenzene-d4	390255	13.39			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	10/21/11
Project:	CTO WE63	Date Received:	10/22/11
Client Sample ID:	FT-DUP04-20111021	SDG No.:	c4303
Lab Sample ID:	C4303-19	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG038600.D	1		11/04/11	VG110411

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TENTATIVE IDENTIFIED COMPOUNDS						
67-66-3	Chloroform	1.7	J		3.06	ug/L

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	10/21/11
Project:	CTO WE63	Date Received:	10/22/11
Client Sample ID:	FT-DUP04-20111021RE	SDG No.:	c4303
Lab Sample ID:	C4303-19RE	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG038662.D	1		11/08/11	VG110711

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	0.5	U	0.2	1	ug/L
75-01-4	Vinyl Chloride	0.5	U	0.34	1	ug/L
75-69-4	Trichlorofluoromethane	0.5	U	0.35	1	ug/L
75-35-4	1,1-Dichloroethene	0.5	U	0.47	1	ug/L
67-64-1	Acetone	2.5	U	0.5	5	ug/L
75-09-2	Methylene Chloride	2.3		0.41	1	ug/L
156-60-5	trans-1,2-Dichloroethene	0.5	U	0.41	1	ug/L
75-34-3	1,1-Dichloroethane	0.5	U	0.36	1	ug/L
78-93-3	2-Butanone	2.5	U	1.3	5	ug/L
156-59-2	cis-1,2-Dichloroethene	0.5	U	0.35	1	ug/L
71-55-6	1,1,1-Trichloroethane	0.5	U	0.4	1	ug/L
71-43-2	Benzene	0.5	U	0.32	1	ug/L
107-06-2	1,2-Dichloroethane	0.5	U	0.48	1	ug/L
79-01-6	Trichloroethene	0.5	U	0.28	1	ug/L
108-88-3	Toluene	0.5	U	0.37	1	ug/L
79-00-5	1,1,2-Trichloroethane	0.5	U	0.38	1	ug/L
127-18-4	Tetrachloroethene	0.5	U	0.27	1	ug/L
100-41-4	Ethyl Benzene	0.5	U	0.2	1	ug/L
179601-23-1	m/p-Xylenes	1	U	0.95	2	ug/L
95-47-6	o-Xylene	0.5	U	0.43	1	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	0.5	U	0.31	1	ug/L
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	51		70 - 120	102%	SPK: 50
1868-53-7	Dibromofluoromethane	52.3		85 - 115	105%	SPK: 50
2037-26-5	Toluene-d8	41.3	*	85 - 120	83%	SPK: 50
460-00-4	4-Bromofluorobenzene	40.8		75 - 120	82%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	800417	3.9			
540-36-3	1,4-Difluorobenzene	1283530	4.71			
3114-55-4	Chlorobenzene-d5	719190	9.68			
3855-82-1	1,4-Dichlorobenzene-d4	318488	13.39			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	10/20/11
Project:	CTO WE63	Date Received:	10/22/11
Client Sample ID:	FT-GW432-6165	SDG No.:	c4303
Lab Sample ID:	C4303-13	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG038571.D	1		11/03/11	VG110311

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	1.4		0.2	1	ug/L
75-01-4	Vinyl Chloride	0.5	U	0.34	1	ug/L
75-69-4	Trichlorofluoromethane	0.5	U	0.35	1	ug/L
75-35-4	1,1-Dichloroethene	0.5	U	0.47	1	ug/L
67-64-1	Acetone	2.5	U	0.5	5	ug/L
75-09-2	Methylene Chloride	6.7		0.41	1	ug/L
156-60-5	trans-1,2-Dichloroethene	0.5	U	0.41	1	ug/L
75-34-3	1,1-Dichloroethane	0.5	U	0.36	1	ug/L
78-93-3	2-Butanone	2.5	U	1.3	5	ug/L
156-59-2	cis-1,2-Dichloroethene	0.5	U	0.35	1	ug/L
71-55-6	1,1,1-Trichloroethane	0.5	U	0.4	1	ug/L
71-43-2	Benzene	0.5	U	0.32	1	ug/L
107-06-2	1,2-Dichloroethane	0.5	U	0.48	1	ug/L
79-01-6	Trichloroethene	0.5	U	0.28	1	ug/L
108-88-3	Toluene	0.5	U	0.37	1	ug/L
79-00-5	1,1,2-Trichloroethane	0.5	U	0.38	1	ug/L
127-18-4	Tetrachloroethene	0.5	U	0.27	1	ug/L
100-41-4	Ethyl Benzene	0.5	U	0.2	1	ug/L
179601-23-1	m/p-Xylenes	1	U	0.95	2	ug/L
95-47-6	o-Xylene	0.5	U	0.43	1	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	0.5	U	0.31	1	ug/L
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	57.4		70 - 120	115%	SPK: 50
1868-53-7	Dibromofluoromethane	50.7		85 - 115	101%	SPK: 50
2037-26-5	Toluene-d8	35.8	*	85 - 120	72%	SPK: 50
460-00-4	4-Bromofluorobenzene	40		75 - 120	80%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	325028	3.92			
540-36-3	1,4-Difluorobenzene	641302	4.74			
3114-55-4	Chlorobenzene-d5	572769	9.7			
3855-82-1	1,4-Dichlorobenzene-d4	255899	13.4			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	10/20/11
Project:	CTO WE63	Date Received:	10/22/11
Client Sample ID:	FT-GW432-6165	SDG No.:	c4303
Lab Sample ID:	C4303-13	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG038571.D	1		11/03/11	VG110311

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TENTATIVE IDENTIFIED COMPOUNDS						
67-66-3	Chloroform	1.0	J		3.05	ug/L

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	10/20/11
Project:	CTO WE63	Date Received:	10/22/11
Client Sample ID:	FT-GW432-7175	SDG No.:	c4303
Lab Sample ID:	C4303-12	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG038547.D	1		11/03/11	VG110211

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	0.5	U	0.2	1	ug/L
75-01-4	Vinyl Chloride	0.5	U	0.34	1	ug/L
75-69-4	Trichlorofluoromethane	0.5	U	0.35	1	ug/L
75-35-4	1,1-Dichloroethene	0.5	U	0.47	1	ug/L
67-64-1	Acetone	2.5	U	0.5	5	ug/L
75-09-2	Methylene Chloride	0.5	U	0.41	1	ug/L
156-60-5	trans-1,2-Dichloroethene	0.5	U	0.41	1	ug/L
75-34-3	1,1-Dichloroethane	0.5	U	0.36	1	ug/L
78-93-3	2-Butanone	2.5	U	1.3	5	ug/L
156-59-2	cis-1,2-Dichloroethene	0.5	U	0.35	1	ug/L
71-55-6	1,1,1-Trichloroethane	0.5	U	0.4	1	ug/L
71-43-2	Benzene	0.5	U	0.32	1	ug/L
107-06-2	1,2-Dichloroethane	0.5	U	0.48	1	ug/L
79-01-6	Trichloroethene	0.5	U	0.28	1	ug/L
108-88-3	Toluene	0.5	U	0.37	1	ug/L
79-00-5	1,1,2-Trichloroethane	0.5	U	0.38	1	ug/L
127-18-4	Tetrachloroethene	0.5	U	0.27	1	ug/L
100-41-4	Ethyl Benzene	0.5	U	0.2	1	ug/L
179601-23-1	m/p-Xylenes	1	U	0.95	2	ug/L
95-47-6	o-Xylene	0.5	U	0.43	1	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	0.5	U	0.31	1	ug/L
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	55.1		70 - 120	110%	SPK: 50
1868-53-7	Dibromofluoromethane	48.4		85 - 115	97%	SPK: 50
2037-26-5	Toluene-d8	37.2	*	85 - 120	74%	SPK: 50
460-00-4	4-Bromofluorobenzene	40.2		75 - 120	80%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	316070	3.93			
540-36-3	1,4-Difluorobenzene	623915	4.75			
3114-55-4	Chlorobenzene-d5	583217	9.7			
3855-82-1	1,4-Dichlorobenzene-d4	252279	13.4			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	10/20/11
Project:	CTO WE63	Date Received:	10/22/11
Client Sample ID:	FT-GW432-7175	SDG No.:	c4303
Lab Sample ID:	C4303-12	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG038547.D	1		11/03/11	VG110211

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TENTATIVE IDENTIFIED COMPOUNDS						
67-66-3	Chloroform	0.54	J		3.07	ug/L

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	10/21/11
Project:	CTO WE63	Date Received:	10/22/11
Client Sample ID:	FT-GW433-2630	SDG No.:	c4303
Lab Sample ID:	C4303-20	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG038601.D	1		11/04/11	VG110411

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	1	J	0.2	1	ug/L
75-01-4	Vinyl Chloride	0.5	U	0.34	1	ug/L
75-69-4	Trichlorofluoromethane	0.5	U	0.35	1	ug/L
75-35-4	1,1-Dichloroethene	0.5	U	0.47	1	ug/L
67-64-1	Acetone	2.5	U	0.5	5	ug/L
75-09-2	Methylene Chloride	6.4		0.41	1	ug/L
156-60-5	trans-1,2-Dichloroethene	0.5	U	0.41	1	ug/L
75-34-3	1,1-Dichloroethane	0.5	U	0.36	1	ug/L
78-93-3	2-Butanone	2.5	U	1.3	5	ug/L
156-59-2	cis-1,2-Dichloroethene	0.5	U	0.35	1	ug/L
71-55-6	1,1,1-Trichloroethane	0.5	U	0.4	1	ug/L
71-43-2	Benzene	0.5	U	0.32	1	ug/L
107-06-2	1,2-Dichloroethane	0.5	U	0.48	1	ug/L
79-01-6	Trichloroethene	0.5	U	0.28	1	ug/L
108-88-3	Toluene	0.5	U	0.37	1	ug/L
79-00-5	1,1,2-Trichloroethane	0.5	U	0.38	1	ug/L
127-18-4	Tetrachloroethene	0.5	U	0.27	1	ug/L
100-41-4	Ethyl Benzene	0.5	U	0.2	1	ug/L
179601-23-1	m/p-Xylenes	1	U	0.95	2	ug/L
95-47-6	o-Xylene	0.5	U	0.43	1	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	0.5	U	0.31	1	ug/L
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	53.1		70 - 120	106%	SPK: 50
1868-53-7	Dibromofluoromethane	50.9		85 - 115	102%	SPK: 50
2037-26-5	Toluene-d8	39.8	*	85 - 120	80%	SPK: 50
460-00-4	4-Bromofluorobenzene	45.3		75 - 120	91%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	445367	3.91			
540-36-3	1,4-Difluorobenzene	857022	4.73			
3114-55-4	Chlorobenzene-d5	842468	9.69			
3855-82-1	1,4-Dichlorobenzene-d4	392132	13.39			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	10/21/11
Project:	CTO WE63	Date Received:	10/22/11
Client Sample ID:	FT-GW433-2630RE	SDG No.:	c4303
Lab Sample ID:	C4303-20RE	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG038663.D	1		11/08/11	VG110711

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	0.5	U	0.2	1	ug/L
75-01-4	Vinyl Chloride	0.5	U	0.34	1	ug/L
75-69-4	Trichlorofluoromethane	0.5	U	0.35	1	ug/L
75-35-4	1,1-Dichloroethene	0.5	U	0.47	1	ug/L
67-64-1	Acetone	2.5	U	0.5	5	ug/L
75-09-2	Methylene Chloride	3.4		0.41	1	ug/L
156-60-5	trans-1,2-Dichloroethene	0.5	U	0.41	1	ug/L
75-34-3	1,1-Dichloroethane	0.5	U	0.36	1	ug/L
78-93-3	2-Butanone	2.5	U	1.3	5	ug/L
156-59-2	cis-1,2-Dichloroethene	0.5	U	0.35	1	ug/L
71-55-6	1,1,1-Trichloroethane	0.5	U	0.4	1	ug/L
71-43-2	Benzene	0.5	U	0.32	1	ug/L
107-06-2	1,2-Dichloroethane	0.5	U	0.48	1	ug/L
79-01-6	Trichloroethene	0.5	U	0.28	1	ug/L
108-88-3	Toluene	0.5	U	0.37	1	ug/L
79-00-5	1,1,2-Trichloroethane	0.5	U	0.38	1	ug/L
127-18-4	Tetrachloroethene	0.5	U	0.27	1	ug/L
100-41-4	Ethyl Benzene	0.5	U	0.2	1	ug/L
179601-23-1	m/p-Xylenes	1	U	0.95	2	ug/L
95-47-6	o-Xylene	0.5	U	0.43	1	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	0.5	U	0.31	1	ug/L
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	51.6		70 - 120	103%	SPK: 50
1868-53-7	Dibromofluoromethane	51.2		85 - 115	102%	SPK: 50
2037-26-5	Toluene-d8	40.1	*	85 - 120	80%	SPK: 50
460-00-4	4-Bromofluorobenzene	39.9		75 - 120	80%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	802064	3.91			
540-36-3	1,4-Difluorobenzene	1308920	4.72			
3114-55-4	Chlorobenzene-d5	709319	9.68			
3855-82-1	1,4-Dichlorobenzene-d4	321001	13.38			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	10/21/11
Project:	CTO WE63	Date Received:	10/22/11
Client Sample ID:	FT-GW433-3135	SDG No.:	c4303
Lab Sample ID:	C4303-21	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG038602.D	1		11/04/11	VG110411

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	0.83	J	0.2	1	ug/L
75-01-4	Vinyl Chloride	0.5	U	0.34	1	ug/L
75-69-4	Trichlorofluoromethane	0.5	U	0.35	1	ug/L
75-35-4	1,1-Dichloroethene	0.5	U	0.47	1	ug/L
67-64-1	Acetone	2.5	U	0.5	5	ug/L
75-09-2	Methylene Chloride	4		0.41	1	ug/L
156-60-5	trans-1,2-Dichloroethene	0.5	U	0.41	1	ug/L
75-34-3	1,1-Dichloroethane	0.5	U	0.36	1	ug/L
78-93-3	2-Butanone	2.5	U	1.3	5	ug/L
156-59-2	cis-1,2-Dichloroethene	0.5	U	0.35	1	ug/L
71-55-6	1,1,1-Trichloroethane	0.5	U	0.4	1	ug/L
71-43-2	Benzene	0.5	U	0.32	1	ug/L
107-06-2	1,2-Dichloroethane	0.5	U	0.48	1	ug/L
79-01-6	Trichloroethene	0.5	U	0.28	1	ug/L
108-88-3	Toluene	0.5	U	0.37	1	ug/L
79-00-5	1,1,2-Trichloroethane	0.5	U	0.38	1	ug/L
127-18-4	Tetrachloroethene	0.5	U	0.27	1	ug/L
100-41-4	Ethyl Benzene	0.5	U	0.2	1	ug/L
179601-23-1	m/p-Xylenes	1	U	0.95	2	ug/L
95-47-6	o-Xylene	0.5	U	0.43	1	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	0.5	U	0.31	1	ug/L
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	53		70 - 120	106%	SPK: 50
1868-53-7	Dibromofluoromethane	48.6		85 - 115	97%	SPK: 50
2037-26-5	Toluene-d8	40.8	*	85 - 120	82%	SPK: 50
460-00-4	4-Bromofluorobenzene	42.9		75 - 120	86%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	454147	3.91			
540-36-3	1,4-Difluorobenzene	907726	4.72			
3114-55-4	Chlorobenzene-d5	849554	9.69			
3855-82-1	1,4-Dichlorobenzene-d4	389537	13.39			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	10/21/11
Project:	CTO WE63	Date Received:	10/22/11
Client Sample ID:	FT-GW433-3135RE	SDG No.:	c4303
Lab Sample ID:	C4303-21RE	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG038664.D	1		11/08/11	VG110711

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	0.5	U	0.2	1	ug/L
75-01-4	Vinyl Chloride	0.5	U	0.34	1	ug/L
75-69-4	Trichlorofluoromethane	0.5	U	0.35	1	ug/L
75-35-4	1,1-Dichloroethene	0.5	U	0.47	1	ug/L
67-64-1	Acetone	2.5	U	0.5	5	ug/L
75-09-2	Methylene Chloride	1.7		0.41	1	ug/L
156-60-5	trans-1,2-Dichloroethene	0.5	U	0.41	1	ug/L
75-34-3	1,1-Dichloroethane	0.5	U	0.36	1	ug/L
78-93-3	2-Butanone	2.5	U	1.3	5	ug/L
156-59-2	cis-1,2-Dichloroethene	0.5	U	0.35	1	ug/L
71-55-6	1,1,1-Trichloroethane	0.5	U	0.4	1	ug/L
71-43-2	Benzene	0.5	U	0.32	1	ug/L
107-06-2	1,2-Dichloroethane	0.5	U	0.48	1	ug/L
79-01-6	Trichloroethene	0.5	U	0.28	1	ug/L
108-88-3	Toluene	0.5	U	0.37	1	ug/L
79-00-5	1,1,2-Trichloroethane	0.5	U	0.38	1	ug/L
127-18-4	Tetrachloroethene	0.5	U	0.27	1	ug/L
100-41-4	Ethyl Benzene	0.5	U	0.2	1	ug/L
179601-23-1	m/p-Xylenes	1	U	0.95	2	ug/L
95-47-6	o-Xylene	0.5	U	0.43	1	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	0.5	U	0.31	1	ug/L
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	51		70 - 120	102%	SPK: 50
1868-53-7	Dibromofluoromethane	49.7		85 - 115	99%	SPK: 50
2037-26-5	Toluene-d8	42.8		85 - 120	86%	SPK: 50
460-00-4	4-Bromofluorobenzene	39.6		75 - 120	79%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	790007	3.91			
540-36-3	1,4-Difluorobenzene	1302190	4.72			
3114-55-4	Chlorobenzene-d5	717410	9.68			
3855-82-1	1,4-Dichlorobenzene-d4	313514	13.39			

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	10/20/11
Project:	CTO WE63	Date Received:	10/22/11
Client Sample ID:	FT-FB02-20111020	SDG No.:	c4303
Lab Sample ID:	C4303-02	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG038540.D	1		11/03/11	VG110211

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	0.5	U	0.2	1	ug/L
75-01-4	Vinyl Chloride	0.5	U	0.34	1	ug/L
75-69-4	Trichlorofluoromethane	0.5	U	0.35	1	ug/L
75-35-4	1,1-Dichloroethene	0.5	U	0.47	1	ug/L
67-64-1	Acetone	2.5	U	0.5	5	ug/L
75-09-2	Methylene Chloride	0.5	U	0.41	1	ug/L
156-60-5	trans-1,2-Dichloroethene	0.5	U	0.41	1	ug/L
75-34-3	1,1-Dichloroethane	0.5	U	0.36	1	ug/L
78-93-3	2-Butanone	2.5	U	1.3	5	ug/L
156-59-2	cis-1,2-Dichloroethene	0.5	U	0.35	1	ug/L
71-55-6	1,1,1-Trichloroethane	0.5	U	0.4	1	ug/L
71-43-2	Benzene	0.5	U	0.32	1	ug/L
107-06-2	1,2-Dichloroethane	0.5	U	0.48	1	ug/L
79-01-6	Trichloroethene	0.5	U	0.28	1	ug/L
108-88-3	Toluene	0.5	U	0.37	1	ug/L
79-00-5	1,1,2-Trichloroethane	0.5	U	0.38	1	ug/L
127-18-4	Tetrachloroethene	0.5	U	0.27	1	ug/L
100-41-4	Ethyl Benzene	0.5	U	0.2	1	ug/L
179601-23-1	m/p-Xylenes	1	U	0.95	2	ug/L
95-47-6	o-Xylene	0.5	U	0.43	1	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	0.5	U	0.31	1	ug/L
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	51		70 - 120	102%	SPK: 50
1868-53-7	Dibromofluoromethane	49		85 - 115	98%	SPK: 50
2037-26-5	Toluene-d8	44.7		85 - 120	89%	SPK: 50
460-00-4	4-Bromofluorobenzene	44.5		75 - 120	89%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	342667	3.92			
540-36-3	1,4-Difluorobenzene	654238	4.74			
3114-55-4	Chlorobenzene-d5	634322	9.69			
3855-82-1	1,4-Dichlorobenzene-d4	289666	13.39			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	10/20/11
Project:	CTO WE63	Date Received:	10/22/11
Client Sample ID:	FT-RB02-20111020	SDG No.:	c4303
Lab Sample ID:	C4303-08	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG038543.D	1		11/03/11	VG110211

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	0.5	U	0.2	1	ug/L
75-01-4	Vinyl Chloride	0.5	U	0.34	1	ug/L
75-69-4	Trichlorofluoromethane	0.5	U	0.35	1	ug/L
75-35-4	1,1-Dichloroethene	0.5	U	0.47	1	ug/L
67-64-1	Acetone	2.5	U	0.5	5	ug/L
75-09-2	Methylene Chloride	0.5	U	0.41	1	ug/L
156-60-5	trans-1,2-Dichloroethene	0.5	U	0.41	1	ug/L
75-34-3	1,1-Dichloroethane	0.5	U	0.36	1	ug/L
78-93-3	2-Butanone	2.5	U	1.3	5	ug/L
156-59-2	cis-1,2-Dichloroethene	0.5	U	0.35	1	ug/L
71-55-6	1,1,1-Trichloroethane	0.5	U	0.4	1	ug/L
71-43-2	Benzene	0.5	U	0.32	1	ug/L
107-06-2	1,2-Dichloroethane	0.5	U	0.48	1	ug/L
79-01-6	Trichloroethene	0.5	U	0.28	1	ug/L
108-88-3	Toluene	0.5	U	0.37	1	ug/L
79-00-5	1,1,2-Trichloroethane	0.5	U	0.38	1	ug/L
127-18-4	Tetrachloroethene	0.5	U	0.27	1	ug/L
100-41-4	Ethyl Benzene	0.5	U	0.2	1	ug/L
179601-23-1	m/p-Xylenes	1	U	0.95	2	ug/L
95-47-6	o-Xylene	0.5	U	0.43	1	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	0.5	U	0.31	1	ug/L
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	52.4		70 - 120	105%	SPK: 50
1868-53-7	Dibromofluoromethane	49.7		85 - 115	99%	SPK: 50
2037-26-5	Toluene-d8	43.8		85 - 120	88%	SPK: 50
460-00-4	4-Bromofluorobenzene	44.1		75 - 120	88%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	326632	3.93			
540-36-3	1,4-Difluorobenzene	635399	4.75			
3114-55-4	Chlorobenzene-d5	593092	9.7			
3855-82-1	1,4-Dichlorobenzene-d4	268880	13.4			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	10/11/11
Project:	CTO WE63	Date Received:	10/22/11
Client Sample ID:	FT-TB03-20111011	SDG No.:	c4303
Lab Sample ID:	C4303-01	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG038363.D	1		10/25/11	VG102511

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	0.5	U	0.2	1	ug/L
75-01-4	Vinyl Chloride	0.5	U	0.34	1	ug/L
75-69-4	Trichlorofluoromethane	0.5	U	0.35	1	ug/L
75-35-4	1,1-Dichloroethene	0.5	U	0.47	1	ug/L
67-64-1	Acetone	2.5	U	0.5	5	ug/L
75-09-2	Methylene Chloride	0.5	U	0.41	1	ug/L
156-60-5	trans-1,2-Dichloroethene	0.5	U	0.41	1	ug/L
75-34-3	1,1-Dichloroethane	0.5	U	0.36	1	ug/L
78-93-3	2-Butanone	2.5	U	1.3	5	ug/L
156-59-2	cis-1,2-Dichloroethene	0.5	U	0.35	1	ug/L
71-55-6	1,1,1-Trichloroethane	0.5	U	0.4	1	ug/L
71-43-2	Benzene	0.5	U	0.32	1	ug/L
107-06-2	1,2-Dichloroethane	0.5	U	0.48	1	ug/L
79-01-6	Trichloroethene	0.5	U	0.28	1	ug/L
108-88-3	Toluene	0.5	U	0.37	1	ug/L
79-00-5	1,1,2-Trichloroethane	0.5	U	0.38	1	ug/L
127-18-4	Tetrachloroethene	0.5	U	0.27	1	ug/L
100-41-4	Ethyl Benzene	0.5	U	0.2	1	ug/L
179601-23-1	m/p-Xylenes	1	U	0.95	2	ug/L
95-47-6	o-Xylene	0.5	U	0.43	1	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	0.5	U	0.31	1	ug/L
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	47.2		70 - 120	94%	SPK: 50
1868-53-7	Dibromofluoromethane	48.6		85 - 115	97%	SPK: 50
2037-26-5	Toluene-d8	48.3		85 - 120	97%	SPK: 50
460-00-4	4-Bromofluorobenzene	47.1		75 - 120	94%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	486990	3.92			
540-36-3	1,4-Difluorobenzene	887354	4.73			
3114-55-4	Chlorobenzene-d5	906856	9.69			
3855-82-1	1,4-Dichlorobenzene-d4	428541	13.39			

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Hit Summary Sheet
SW-846

SDG No.: C4303

Client: Tetra Tech NUS, Inc.

Sample ID	Client ID		Parameter		Concentration	C	RDL	MDL	Units
Client ID:	**FT-DUP03-20111020**								
C4303-15	FT-DUP03-20111020	WATER	Chloroform	*	1.90	J	1.0	0.34	ug/L
			Total Tics :			**1.90**			
			Total Concentration:			**1.90**			
Client ID:	**FT-DUP04-20111021**								
C4303-19	FT-DUP04-20111021	WATER	Dichlorodifluoromethane		0.95	J	1.0	0.20	ug/L
C4303-19	FT-DUP04-20111021	WATER	Methylene Chloride		5.10		1.0	0.41	ug/L
			Total Voc :			**6.05**			
C4303-19	FT-DUP04-20111021	WATER	Chloroform	*	1.70	J	1.0	0.34	ug/L
			Total Tics :			**1.70**			
			Total Concentration:			**7.75**			
Client ID:	**FT-DUP04-20111021RE**								
C4303-19RE	FT-DUP04-20111021R	WATER	Methylene Chloride		2.30		1.0	0.41	ug/L
			Total Voc :			**2.30**			
			Total Concentration:			**2.30**			
Client ID:	**FT-GW431-2125**								
C4303-11	FT-GW431-2125	WATER	Chloroform	*	0.55	J	1.0	0.34	ug/L
			Total Tics :			**0.55**			
			Total Concentration:			**0.55**			
Client ID:	**FT-GW431-4145**								
C4303-10	FT-GW431-4145	WATER	Chloroform	*	0.51	J	1.0	0.34	ug/L
			Total Tics :			**0.51**			
			Total Concentration:			**0.51**			
Client ID:	**FT-GW431-5155**								
C4303-09	FT-GW431-5155	WATER	Chloroform	*	2.10	J	1.0	0.34	ug/L
			Total Tics :			**2.10**			
			Total Concentration:			**2.10**			
Client ID:	**FT-GW431-6165**								
C4303-04	FT-GW431-6165	WATER	Chloroform	*	1.10	J	1.0	0.34	ug/L
			Total Tics :			**1.10**			
			Total Concentration:			**1.10**			
Client ID:	**FT-GW431-7175**								
C4303-03	FT-GW431-7175	WATER	Chloroform	*	1.50	J	1.0	0.34	ug/L
			Total Tics :			**1.50**			
			Total Concentration:			**1.50**			
Client ID:	**FT-GW432-4145**								
C4303-17	FT-GW432-4145	WATER	Chloroform	*	0.77	J	1.0	0.34	ug/L
			Total Tics :			**0.77**			
			Total Concentration:			**0.77**			
Client ID:	**FT-GW432-5155**								
C4303-16	FT-GW432-5155	WATER	Chloroform	*	3.20	J	1.0	0.34	ug/L
			Total Tics :			**3.20**			
			Total Concentration:			**3.20**			

CHEMTECH

Hit Summary Sheet
SW-846

SDG No.: C4303

Client: Tetra Tech NUS, Inc.

Sample ID	Client ID		Parameter		Concentration	C	RDL	MDL	Units
Client ID:	**FT-GW432-6165**								
C4303-13	FT-GW432-6165	WATER	Dichlorodifluoromethane		1.40		1.0	0.20	ug/L
C4303-13	FT-GW432-6165	WATER	Methylene Chloride		6.70		1.0	0.41	ug/L
			Total Voc :			**8.10**			
C4303-13	FT-GW432-6165	WATER	Chloroform	*	1.00	J	1.0	0.34	ug/L
			Total Tics :			**1.00**			
			Total Concentration:			**9.10**			
Client ID:	**FT-GW432-7175**								
C4303-12	FT-GW432-7175	WATER	Chloroform	*	0.54	J	1.0	0.34	ug/L
			Total Tics :			**0.54**			
			Total Concentration:			**0.54**			
Client ID:	**FT-GW433-2630**								
C4303-20	FT-GW433-2630	WATER	Dichlorodifluoromethane		1.00	J	1.0	0.20	ug/L
C4303-20	FT-GW433-2630	WATER	Methylene Chloride		6.40		1.0	0.41	ug/L
			Total Voc :			**7.40**			
			Total Concentration:			**7.40**			
Client ID:	**FT-GW433-2630RE**								
C4303-20RE	FT-GW433-2630RE	WATER	Methylene Chloride		3.40		1.0	0.41	ug/L
			Total Voc :			**3.40**			
			Total Concentration:			**3.40**			
Client ID:	**FT-GW433-3135**								
C4303-21	FT-GW433-3135	WATER	Dichlorodifluoromethane		0.83	J	1.0	0.20	ug/L
C4303-21	FT-GW433-3135	WATER	Methylene Chloride		4.00		1.0	0.41	ug/L
			Total Voc :			**4.83**			
			Total Concentration:			**4.83**			
Client ID:	**FT-GW433-3135RE**								
C4303-21RE	FT-GW433-3135RE	WATER	Methylene Chloride		1.70		1.0	0.41	ug/L
			Total Voc :			**1.70**			
			Total Concentration:			**1.70**			

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ANALYTICAL RESULTS SUMMARY

PROJECT NAME : CTO WE63

TETRA TECH NUS, INC.
661 Anderson Drive

Pittsburgh , Pennsylvania - 15220-2745
Phone No: 4129218361

ORDER ID : C4354
ATTENTION : David Brayack

ACCREDITED IN ACCORDANCE WITH nelac

DoD ELAP

CHEMTECH 284 Sheffield Street, Mountainside, New Jersey 07092 Phone : 908 789 8900 Fax : 908 789 8922

Cover Page

Order ID : C4354

Project ID : CTO WE63

Client : Tetra Tech NUS, Inc.

Lab Sample Number	Client Sample Number
C4354-01	FT-TB04-20111011
C4354-02	FT-GW433-4145
C4354-03	FT-GW433-7175
C4354-04	FT-GW433-5155
C4354-05	FT-GW433-5963
C4354-06	FT-GW435-7175
C4354-07	FT-GW435-2125
C4354-08	FT-GW435-3135
C4354-09	FT-FB03-20111025
C4354-10	FT-RB03-20111025
C4354-11	FT-GW435-6165
C4354-12	FT-GW435-5155
C4354-13	C4354-12MS
C4354-14	C4354-12MSD
C4354-15	FT-GW435-4145

I certify that the data package is in compliance with the terms and conditions of the contract,both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hard copy data package has been authorized by the laboratory manager or his designee, as verified by the following signature.

Signature : _____

NYDOH CERTIFICATION NO - 11376

NJDEP CERTIFICATION NO - 20012

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	10/24/11
Project:	CTO WE63	Date Received:	10/27/11
Client Sample ID:	FT-GW433-4145	SDG No.:	C4354
Lab Sample ID:	C4354-02	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG038621.D	1		11/05/11	VG110411

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	0.5	U	0.2	1	ug/L
75-01-4	Vinyl Chloride	0.5	U	0.34	1	ug/L
75-69-4	Trichlorofluoromethane	0.5	U	0.35	1	ug/L
75-35-4	1,1-Dichloroethene	0.5	U	0.47	1	ug/L
67-64-1	Acetone	2.5	U	0.5	5	ug/L
75-09-2	Methylene Chloride	0.5	U	0.41	1	ug/L
156-60-5	trans-1,2-Dichloroethene	0.5	U	0.41	1	ug/L
75-34-3	1,1-Dichloroethane	0.5	U	0.36	1	ug/L
78-93-3	2-Butanone	2.5	U	1.3	5	ug/L
156-59-2	cis-1,2-Dichloroethene	0.5	U	0.35	1	ug/L
71-55-6	1,1,1-Trichloroethane	0.5	U	0.4	1	ug/L
71-43-2	Benzene	0.5	U	0.32	1	ug/L
107-06-2	1,2-Dichloroethane	0.5	U	0.48	1	ug/L
79-01-6	Trichloroethene	0.5	U	0.28	1	ug/L
108-88-3	Toluene	0.5	U	0.37	1	ug/L
79-00-5	1,1,2-Trichloroethane	0.5	U	0.38	1	ug/L
127-18-4	Tetrachloroethene	0.5	U	0.27	1	ug/L
100-41-4	Ethyl Benzene	0.5	U	0.2	1	ug/L
179601-23-1	m/p-Xylenes	1	U	0.95	2	ug/L
95-47-6	o-Xylene	0.5	U	0.43	1	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	0.5	U	0.31	1	ug/L
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	53.8		70 - 120	108%	SPK: 50
1868-53-7	Dibromofluoromethane	49.2		85 - 115	98%	SPK: 50
2037-26-5	Toluene-d8	31.4	*	85 - 120	63%	SPK: 50
460-00-4	4-Bromofluorobenzene	39.8		75 - 120	80%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	451691	3.91			
540-36-3	1,4-Difluorobenzene	891333	4.73			
3114-55-4	Chlorobenzene-d5	811429	9.68			
3855-82-1	1,4-Dichlorobenzene-d4	361741	13.39			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	10/24/11
Project:	CTO WE63	Date Received:	10/27/11
Client Sample ID:	FT-GW433-4145	SDG No.:	C4354
Lab Sample ID:	C4354-02	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG038621.D	1		11/05/11	VG110411

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TENTATIVE IDENTIFIED COMPOUNDS						
67-66-3	Chloroform	0.75	J		3.05	ug/L

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	10/24/11
Project:	CTO WE63	Date Received:	10/27/11
Client Sample ID:	FT-GW433-5155	SDG No.:	C4354
Lab Sample ID:	C4354-04	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG038623.D	1		11/05/11	VG110411

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	0.5	U	0.2	1	ug/L
75-01-4	Vinyl Chloride	0.5	U	0.34	1	ug/L
75-69-4	Trichlorofluoromethane	0.5	U	0.35	1	ug/L
75-35-4	1,1-Dichloroethene	0.5	U	0.47	1	ug/L
67-64-1	Acetone	2.5	U	0.5	5	ug/L
75-09-2	Methylene Chloride	0.5	U	0.41	1	ug/L
156-60-5	trans-1,2-Dichloroethene	0.5	U	0.41	1	ug/L
75-34-3	1,1-Dichloroethane	0.5	U	0.36	1	ug/L
78-93-3	2-Butanone	2.5	U	1.3	5	ug/L
156-59-2	cis-1,2-Dichloroethene	0.5	U	0.35	1	ug/L
71-55-6	1,1,1-Trichloroethane	0.5	U	0.4	1	ug/L
71-43-2	Benzene	0.5	U	0.32	1	ug/L
107-06-2	1,2-Dichloroethane	0.5	U	0.48	1	ug/L
79-01-6	Trichloroethene	0.5	U	0.28	1	ug/L
108-88-3	Toluene	0.5	U	0.37	1	ug/L
79-00-5	1,1,2-Trichloroethane	0.5	U	0.38	1	ug/L
127-18-4	Tetrachloroethene	0.5	U	0.27	1	ug/L
100-41-4	Ethyl Benzene	0.5	U	0.2	1	ug/L
179601-23-1	m/p-Xylenes	1	U	0.95	2	ug/L
95-47-6	o-Xylene	0.5	U	0.43	1	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	0.5	U	0.31	1	ug/L
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	56.7		70 - 120	113%	SPK: 50
1868-53-7	Dibromofluoromethane	50		85 - 115	100%	SPK: 50
2037-26-5	Toluene-d8	32.9	*	85 - 120	66%	SPK: 50
460-00-4	4-Bromofluorobenzene	40.5		75 - 120	81%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	457045	3.9			
540-36-3	1,4-Difluorobenzene	917785	4.71			
3114-55-4	Chlorobenzene-d5	844114	9.68			
3855-82-1	1,4-Dichlorobenzene-d4	370330	13.37			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	10/24/11
Project:	CTO WE63	Date Received:	10/27/11
Client Sample ID:	FT-GW433-5155	SDG No.:	C4354
Lab Sample ID:	C4354-04	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG038623.D	1		11/05/11	VG110411

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TENTATIVE IDENTIFIED COMPOUNDS						
67-66-3	Chloroform	1.3	J		3.04	ug/L

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	10/24/11
Project:	CTO WE63	Date Received:	10/27/11
Client Sample ID:	FT-GW433-5963	SDG No.:	C4354
Lab Sample ID:	C4354-05	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG038624.D	1		11/05/11	VG110411

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	0.5	U	0.2	1	ug/L
75-01-4	Vinyl Chloride	0.5	U	0.34	1	ug/L
75-69-4	Trichlorofluoromethane	0.5	U	0.35	1	ug/L
75-35-4	1,1-Dichloroethene	0.5	U	0.47	1	ug/L
67-64-1	Acetone	2.5	U	0.5	5	ug/L
75-09-2	Methylene Chloride	0.5	U	0.41	1	ug/L
156-60-5	trans-1,2-Dichloroethene	0.5	U	0.41	1	ug/L
75-34-3	1,1-Dichloroethane	0.5	U	0.36	1	ug/L
78-93-3	2-Butanone	2.5	U	1.3	5	ug/L
156-59-2	cis-1,2-Dichloroethene	0.5	U	0.35	1	ug/L
71-55-6	1,1,1-Trichloroethane	0.5	U	0.4	1	ug/L
71-43-2	Benzene	0.5	U	0.32	1	ug/L
107-06-2	1,2-Dichloroethane	0.5	U	0.48	1	ug/L
79-01-6	Trichloroethene	0.5	U	0.28	1	ug/L
108-88-3	Toluene	0.5	U	0.37	1	ug/L
79-00-5	1,1,2-Trichloroethane	0.5	U	0.38	1	ug/L
127-18-4	Tetrachloroethene	0.5	U	0.27	1	ug/L
100-41-4	Ethyl Benzene	0.5	U	0.2	1	ug/L
179601-23-1	m/p-Xylenes	1	U	0.95	2	ug/L
95-47-6	o-Xylene	0.5	U	0.43	1	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	0.5	U	0.31	1	ug/L
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	56.7		70 - 120	113%	SPK: 50
1868-53-7	Dibromofluoromethane	50.8		85 - 115	102%	SPK: 50
2037-26-5	Toluene-d8	35.5	*	85 - 120	71%	SPK: 50
460-00-4	4-Bromofluorobenzene	42		75 - 120	84%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	439151	3.91			
540-36-3	1,4-Difluorobenzene	855894	4.71			
3114-55-4	Chlorobenzene-d5	801396	9.68			
3855-82-1	1,4-Dichlorobenzene-d4	353162	13.37			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	10/24/11
Project:	CTO WE63	Date Received:	10/27/11
Client Sample ID:	FT-GW433-5963	SDG No.:	C4354
Lab Sample ID:	C4354-05	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG038624.D	1		11/05/11	VG110411

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TENTATIVE IDENTIFIED COMPOUNDS						
67-66-3	Chloroform	2.2	J		3.04	ug/L

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	10/24/11
Project:	CTO WE63	Date Received:	10/27/11
Client Sample ID:	FT-GW433-7175	SDG No.:	C4354
Lab Sample ID:	C4354-03	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG038622.D	1		11/05/11	VG110411

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	0.5	U	0.2	1	ug/L
75-01-4	Vinyl Chloride	0.5	U	0.34	1	ug/L
75-69-4	Trichlorofluoromethane	0.5	U	0.35	1	ug/L
75-35-4	1,1-Dichloroethene	0.5	U	0.47	1	ug/L
67-64-1	Acetone	2.5	U	0.5	5	ug/L
75-09-2	Methylene Chloride	0.5	U	0.41	1	ug/L
156-60-5	trans-1,2-Dichloroethene	0.5	U	0.41	1	ug/L
75-34-3	1,1-Dichloroethane	0.5	U	0.36	1	ug/L
78-93-3	2-Butanone	2.5	U	1.3	5	ug/L
156-59-2	cis-1,2-Dichloroethene	0.5	U	0.35	1	ug/L
71-55-6	1,1,1-Trichloroethane	0.5	U	0.4	1	ug/L
71-43-2	Benzene	0.5	U	0.32	1	ug/L
107-06-2	1,2-Dichloroethane	0.5	U	0.48	1	ug/L
79-01-6	Trichloroethene	0.5	U	0.28	1	ug/L
108-88-3	Toluene	0.5	U	0.37	1	ug/L
79-00-5	1,1,2-Trichloroethane	0.5	U	0.38	1	ug/L
127-18-4	Tetrachloroethene	0.5	U	0.27	1	ug/L
100-41-4	Ethyl Benzene	0.5	U	0.2	1	ug/L
179601-23-1	m/p-Xylenes	1	U	0.95	2	ug/L
95-47-6	o-Xylene	0.5	U	0.43	1	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	0.5	U	0.31	1	ug/L
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	53.6		70 - 120	107%	SPK: 50
1868-53-7	Dibromofluoromethane	49.9		85 - 115	100%	SPK: 50
2037-26-5	Toluene-d8	36.9	*	85 - 120	74%	SPK: 50
460-00-4	4-Bromofluorobenzene	40.7		75 - 120	81%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	426549	3.92			
540-36-3	1,4-Difluorobenzene	875581	4.73			
3114-55-4	Chlorobenzene-d5	796730	9.69			
3855-82-1	1,4-Dichlorobenzene-d4	351750	13.39			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	10/24/11
Project:	CTO WE63	Date Received:	10/27/11
Client Sample ID:	FT-GW433-7175	SDG No.:	C4354
Lab Sample ID:	C4354-03	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG038622.D	1		11/05/11	VG110411

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TENTATIVE IDENTIFIED COMPOUNDS						
67-66-3	Chloroform	0.40	J		3.06	ug/L

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	10/24/11
Project:	CTO WE63	Date Received:	10/27/11
Client Sample ID:	FT-GW435-2125	SDG No.:	C4354
Lab Sample ID:	C4354-07	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG038626.D	1		11/05/11	VG110411

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	0.5	U	0.2	1	ug/L
75-01-4	Vinyl Chloride	0.5	U	0.34	1	ug/L
75-69-4	Trichlorofluoromethane	0.5	U	0.35	1	ug/L
75-35-4	1,1-Dichloroethene	0.5	U	0.47	1	ug/L
67-64-1	Acetone	2.5	U	0.5	5	ug/L
75-09-2	Methylene Chloride	0.5	U	0.41	1	ug/L
156-60-5	trans-1,2-Dichloroethene	0.5	U	0.41	1	ug/L
75-34-3	1,1-Dichloroethane	0.5	U	0.36	1	ug/L
78-93-3	2-Butanone	2.5	U	1.3	5	ug/L
156-59-2	cis-1,2-Dichloroethene	0.5	U	0.35	1	ug/L
71-55-6	1,1,1-Trichloroethane	0.5	U	0.4	1	ug/L
71-43-2	Benzene	0.5	U	0.32	1	ug/L
107-06-2	1,2-Dichloroethane	0.5	U	0.48	1	ug/L
79-01-6	Trichloroethene	0.5	U	0.28	1	ug/L
108-88-3	Toluene	0.5	U	0.37	1	ug/L
79-00-5	1,1,2-Trichloroethane	0.5	U	0.38	1	ug/L
127-18-4	Tetrachloroethene	0.5	U	0.27	1	ug/L
100-41-4	Ethyl Benzene	0.5	U	0.2	1	ug/L
179601-23-1	m/p-Xylenes	1	U	0.95	2	ug/L
95-47-6	o-Xylene	0.5	U	0.43	1	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	0.5	U	0.31	1	ug/L
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	55.7		70 - 120	111%	SPK: 50
1868-53-7	Dibromofluoromethane	50.7		85 - 115	101%	SPK: 50
2037-26-5	Toluene-d8	33	*	85 - 120	66%	SPK: 50
460-00-4	4-Bromofluorobenzene	39.8		75 - 120	80%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	431637	3.9			
540-36-3	1,4-Difluorobenzene	853638	4.71			
3114-55-4	Chlorobenzene-d5	765267	9.67			
3855-82-1	1,4-Dichlorobenzene-d4	346677	13.37			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	10/24/11
Project:	CTO WE63	Date Received:	10/27/11
Client Sample ID:	FT-GW435-3135	SDG No.:	C4354
Lab Sample ID:	C4354-08	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG038658.D	1		11/07/11	VG110711

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	0.5	U	0.2	1	ug/L
75-01-4	Vinyl Chloride	0.5	U	0.34	1	ug/L
75-69-4	Trichlorofluoromethane	0.5	U	0.35	1	ug/L
75-35-4	1,1-Dichloroethene	0.5	U	0.47	1	ug/L
67-64-1	Acetone	4.1	J	0.5	5	ug/L
75-09-2	Methylene Chloride	0.5	U	0.41	1	ug/L
156-60-5	trans-1,2-Dichloroethene	0.5	U	0.41	1	ug/L
75-34-3	1,1-Dichloroethane	1.1		0.36	1	ug/L
78-93-3	2-Butanone	6.2		1.3	5	ug/L
156-59-2	cis-1,2-Dichloroethene	0.5	U	0.35	1	ug/L
71-55-6	1,1,1-Trichloroethane	0.5	U	0.4	1	ug/L
71-43-2	Benzene	0.5	U	0.32	1	ug/L
107-06-2	1,2-Dichloroethane	0.5	U	0.48	1	ug/L
79-01-6	Trichloroethene	16		0.28	1	ug/L
108-88-3	Toluene	0.5	U	0.37	1	ug/L
79-00-5	1,1,2-Trichloroethane	0.5	U	0.38	1	ug/L
127-18-4	Tetrachloroethene	0.5	U	0.27	1	ug/L
100-41-4	Ethyl Benzene	0.5	U	0.2	1	ug/L
179601-23-1	m/p-Xylenes	1	U	0.95	2	ug/L
95-47-6	o-Xylene	0.5	U	0.43	1	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	0.5	U	0.31	1	ug/L
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	48.6		70 - 120	97%	SPK: 50
1868-53-7	Dibromofluoromethane	51.8		85 - 115	104%	SPK: 50
2037-26-5	Toluene-d8	46.6		85 - 120	93%	SPK: 50
460-00-4	4-Bromofluorobenzene	45.1		75 - 120	90%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	842941	3.91			
540-36-3	1,4-Difluorobenzene	1330800	4.72			
3114-55-4	Chlorobenzene-d5	818971	9.68			
3855-82-1	1,4-Dichlorobenzene-d4	345490	13.38			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	10/24/11
Project:	CTO WE63	Date Received:	10/27/11
Client Sample ID:	FT-GW435-3135	SDG No.:	C4354
Lab Sample ID:	C4354-08	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG038658.D	1		11/07/11	VG110711

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TENTATIVE IDENTIFIED COMPOUNDS						
79-20-9	Methyl Acetate	1.4	J		1.87	ug/L
75-65-0	Tert butyl alcohol	22	J		2.04	ug/L
108-05-4	Vinyl Acetate	1.7	J		2.52	ug/L
108-10-1	4-Methyl-2-Pentanone	5.5	J		8.08	ug/L
591-78-6	2-Hexanone	6.6	J		9.45	ug/L
91-20-3	Naphthalene	1.7	J		16.92	ug/L

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	10/25/11
Project:	CTO WE63	Date Received:	10/27/11
Client Sample ID:	FT-GW435-4145	SDG No.:	C4354
Lab Sample ID:	C4354-15	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG038661.D	1		11/08/11	VG110711

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	0.5	U	0.2	1	ug/L
75-01-4	Vinyl Chloride	0.5	U	0.34	1	ug/L
75-69-4	Trichlorofluoromethane	0.5	U	0.35	1	ug/L
75-35-4	1,1-Dichloroethene	0.5	U	0.47	1	ug/L
67-64-1	Acetone	2.5	U	0.5	5	ug/L
75-09-2	Methylene Chloride	0.5	U	0.41	1	ug/L
156-60-5	trans-1,2-Dichloroethene	0.5	U	0.41	1	ug/L
75-34-3	1,1-Dichloroethane	0.5	U	0.36	1	ug/L
78-93-3	2-Butanone	2.5	U	1.3	5	ug/L
156-59-2	cis-1,2-Dichloroethene	0.5	U	0.35	1	ug/L
71-55-6	1,1,1-Trichloroethane	0.5	U	0.4	1	ug/L
71-43-2	Benzene	0.5	U	0.32	1	ug/L
107-06-2	1,2-Dichloroethane	0.5	U	0.48	1	ug/L
79-01-6	Trichloroethene	0.5	U	0.28	1	ug/L
108-88-3	Toluene	0.5	U	0.37	1	ug/L
79-00-5	1,1,2-Trichloroethane	0.5	U	0.38	1	ug/L
127-18-4	Tetrachloroethene	0.5	U	0.27	1	ug/L
100-41-4	Ethyl Benzene	0.5	U	0.2	1	ug/L
179601-23-1	m/p-Xylenes	1	U	0.95	2	ug/L
95-47-6	o-Xylene	0.5	U	0.43	1	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	0.5	U	0.31	1	ug/L
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	51		70 - 120	102%	SPK: 50
1868-53-7	Dibromofluoromethane	52.1		85 - 115	104%	SPK: 50
2037-26-5	Toluene-d8	38.8	*	85 - 120	78%	SPK: 50
460-00-4	4-Bromofluorobenzene	41.6		75 - 120	83%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	785001	3.91			
540-36-3	1,4-Difluorobenzene	1307740	4.72			
3114-55-4	Chlorobenzene-d5	729539	9.68			
3855-82-1	1,4-Dichlorobenzene-d4	314370	13.39			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	10/25/11
Project:	CTO WE63	Date Received:	10/27/11
Client Sample ID:	FT-GW435-5155	SDG No.:	C4354
Lab Sample ID:	C4354-12	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG038620.D	1		11/05/11	VG110411

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	0.5	U	0.2	1	ug/L
75-01-4	Vinyl Chloride	0.5	U	0.34	1	ug/L
75-69-4	Trichlorofluoromethane	0.5	U	0.35	1	ug/L
75-35-4	1,1-Dichloroethene	0.5	U	0.47	1	ug/L
67-64-1	Acetone	2.5	U	0.5	5	ug/L
75-09-2	Methylene Chloride	0.5	U	0.41	1	ug/L
156-60-5	trans-1,2-Dichloroethene	0.5	U	0.41	1	ug/L
75-34-3	1,1-Dichloroethane	0.5	U	0.36	1	ug/L
78-93-3	2-Butanone	2.5	U	1.3	5	ug/L
156-59-2	cis-1,2-Dichloroethene	0.5	U	0.35	1	ug/L
71-55-6	1,1,1-Trichloroethane	0.5	U	0.4	1	ug/L
71-43-2	Benzene	0.5	U	0.32	1	ug/L
107-06-2	1,2-Dichloroethane	0.5	U	0.48	1	ug/L
79-01-6	Trichloroethene	0.5	U	0.28	1	ug/L
108-88-3	Toluene	0.5	U	0.37	1	ug/L
79-00-5	1,1,2-Trichloroethane	0.5	U	0.38	1	ug/L
127-18-4	Tetrachloroethene	0.5	U	0.27	1	ug/L
100-41-4	Ethyl Benzene	0.5	U	0.2	1	ug/L
179601-23-1	m/p-Xylenes	1	U	0.95	2	ug/L
95-47-6	o-Xylene	0.5	U	0.43	1	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	0.5	U	0.31	1	ug/L
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	54.1		70 - 120	108%	SPK: 50
1868-53-7	Dibromofluoromethane	50.6		85 - 115	101%	SPK: 50
2037-26-5	Toluene-d8	40.2	*	85 - 120	81%	SPK: 50
460-00-4	4-Bromofluorobenzene	42.3		75 - 120	85%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	450532	3.92			
540-36-3	1,4-Difluorobenzene	880331	4.73			
3114-55-4	Chlorobenzene-d5	775955	9.69			
3855-82-1	1,4-Dichlorobenzene-d4	361318	13.39			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	10/25/11
Project:	CTO WE63	Date Received:	10/27/11
Client Sample ID:	FT-GW435-5155	SDG No.:	C4354
Lab Sample ID:	C4354-12	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG038620.D	1		11/05/11	VG110411

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TENTATIVE IDENTIFIED COMPOUNDS						
67-66-3	Chloroform	1.4	J		3.06	ug/L

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	10/25/11
Project:	CTO WE63	Date Received:	10/27/11
Client Sample ID:	FT-GW435-6165	SDG No.:	C4354
Lab Sample ID:	C4354-11	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG038660.D	1		11/08/11	VG110711

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	0.5	U	0.2	1	ug/L
75-01-4	Vinyl Chloride	0.5	U	0.34	1	ug/L
75-69-4	Trichlorofluoromethane	0.5	U	0.35	1	ug/L
75-35-4	1,1-Dichloroethene	0.5	U	0.47	1	ug/L
67-64-1	Acetone	1.4	J	0.5	5	ug/L
75-09-2	Methylene Chloride	0.5	U	0.41	1	ug/L
156-60-5	trans-1,2-Dichloroethene	0.5	U	0.41	1	ug/L
75-34-3	1,1-Dichloroethane	0.5	U	0.36	1	ug/L
78-93-3	2-Butanone	2.5	U	1.3	5	ug/L
156-59-2	cis-1,2-Dichloroethene	0.5	U	0.35	1	ug/L
71-55-6	1,1,1-Trichloroethane	0.5	U	0.4	1	ug/L
71-43-2	Benzene	0.5	U	0.32	1	ug/L
107-06-2	1,2-Dichloroethane	0.5	U	0.48	1	ug/L
79-01-6	Trichloroethene	0.5	U	0.28	1	ug/L
108-88-3	Toluene	0.5	U	0.37	1	ug/L
79-00-5	1,1,2-Trichloroethane	0.5	U	0.38	1	ug/L
127-18-4	Tetrachloroethene	0.5	U	0.27	1	ug/L
100-41-4	Ethyl Benzene	0.5	U	0.2	1	ug/L
179601-23-1	m/p-Xylenes	1	U	0.95	2	ug/L
95-47-6	o-Xylene	0.5	U	0.43	1	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	0.5	U	0.31	1	ug/L
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	51.2		70 - 120	102%	SPK: 50
1868-53-7	Dibromofluoromethane	53.4		85 - 115	107%	SPK: 50
2037-26-5	Toluene-d8	43.9		85 - 120	88%	SPK: 50
460-00-4	4-Bromofluorobenzene	43.6		75 - 120	87%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	786339	3.91			
540-36-3	1,4-Difluorobenzene	1238560	4.72			
3114-55-4	Chlorobenzene-d5	719798	9.68			
3855-82-1	1,4-Dichlorobenzene-d4	308479	13.38			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	10/25/11
Project:	CTO WE63	Date Received:	10/27/11
Client Sample ID:	FT-GW435-6165	SDG No.:	C4354
Lab Sample ID:	C4354-11	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG038660.D	1		11/08/11	VG110711

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TENTATIVE IDENTIFIED COMPOUNDS						
67-66-3	Chloroform	0.61	J		3.04	ug/L

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	10/25/11
Project:	CTO WE63	Date Received:	10/27/11
Client Sample ID:	FT-DUP05-20111025	SDG No.:	C4355
Lab Sample ID:	C4355-07	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VH044193.D	1		11/08/11	VH110711

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	2.5	U	0.55	5	ug/L
75-01-4	Vinyl Chloride	2.5	U	0.34	5	ug/L
75-69-4	Trichlorofluoromethane	2.5	U	0.35	5	ug/L
75-35-4	1,1-Dichloroethene	2.5	U	0.47	5	ug/L
67-64-1	Acetone	12.5	U	2.8	25	ug/L
75-09-2	Methylene Chloride	2.5	U	0.41	5	ug/L
156-60-5	trans-1,2-Dichloroethene	2.5	U	0.41	5	ug/L
75-34-3	1,1-Dichloroethane	2.5	U	0.36	5	ug/L
78-93-3	2-Butanone	12.5	U	1.3	25	ug/L
156-59-2	cis-1,2-Dichloroethene	2.5	U	0.35	5	ug/L
71-55-6	1,1,1-Trichloroethane	2.5	U	0.4	5	ug/L
71-43-2	Benzene	2.5	U	0.32	5	ug/L
107-06-2	1,2-Dichloroethane	2.5	U	0.48	5	ug/L
79-01-6	Trichloroethene	2.5	U	0.28	5	ug/L
108-88-3	Toluene	2.5	U	0.37	5	ug/L
79-00-5	1,1,2-Trichloroethane	2.5	U	0.38	5	ug/L
127-18-4	Tetrachloroethene	2.5	U	0.27	5	ug/L
100-41-4	Ethyl Benzene	2.5	U	0.53	5	ug/L
179601-23-1	m/p-Xylenes	5	U	0.95	10	ug/L
95-47-6	o-Xylene	2.5	U	0.43	5	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	2.5	U	0.31	5	ug/L
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	54.4		70 - 120	109%	SPK: 50
1868-53-7	Dibromofluoromethane	50.3		85 - 115	101%	SPK: 50
2037-26-5	Toluene-d8	56.4		85 - 120	113%	SPK: 50
460-00-4	4-Bromofluorobenzene	60.7	*	75 - 120	121%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	386445	4.93			
540-36-3	1,4-Difluorobenzene	627911	5.64			
3114-55-4	Chlorobenzene-d5	644693	9.78			
3855-82-1	1,4-Dichlorobenzene-d4	352748	12.53			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	10/25/11
Project:	CTO WE63	Date Received:	10/27/11
Client Sample ID:	FT-DUP05-20111025RE	SDG No.:	C4355
Lab Sample ID:	C4355-07RE	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG038690.D	1		11/08/11	VG110811

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	0.5	U	0.2	1	ug/L
75-01-4	Vinyl Chloride	0.5	U	0.34	1	ug/L
75-69-4	Trichlorofluoromethane	0.5	U	0.35	1	ug/L
75-35-4	1,1-Dichloroethene	0.5	U	0.47	1	ug/L
67-64-1	Acetone	2.5	U	0.5	5	ug/L
75-09-2	Methylene Chloride	0.5	U	0.41	1	ug/L
156-60-5	trans-1,2-Dichloroethene	0.5	U	0.41	1	ug/L
75-34-3	1,1-Dichloroethane	0.5	U	0.36	1	ug/L
78-93-3	2-Butanone	2.5	U	1.3	5	ug/L
156-59-2	cis-1,2-Dichloroethene	0.5	U	0.35	1	ug/L
71-55-6	1,1,1-Trichloroethane	0.5	U	0.4	1	ug/L
71-43-2	Benzene	0.5	U	0.32	1	ug/L
107-06-2	1,2-Dichloroethane	0.5	U	0.48	1	ug/L
79-01-6	Trichloroethene	0.5	U	0.28	1	ug/L
108-88-3	Toluene	0.5	U	0.37	1	ug/L
79-00-5	1,1,2-Trichloroethane	0.5	U	0.38	1	ug/L
127-18-4	Tetrachloroethene	0.5	U	0.27	1	ug/L
100-41-4	Ethyl Benzene	0.5	U	0.2	1	ug/L
179601-23-1	m/p-Xylenes	1	U	0.95	2	ug/L
95-47-6	o-Xylene	0.5	U	0.43	1	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	0.5	U	0.31	1	ug/L
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	53.6		70 - 120	107%	SPK: 50
1868-53-7	Dibromofluoromethane	51		85 - 115	102%	SPK: 50
2037-26-5	Toluene-d8	41.2	*	85 - 120	82%	SPK: 50
460-00-4	4-Bromofluorobenzene	36.5	*	75 - 120	73%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	703381	3.9			
540-36-3	1,4-Difluorobenzene	1161180	4.72			
3114-55-4	Chlorobenzene-d5	602110	9.69			
3855-82-1	1,4-Dichlorobenzene-d4	245111	13.38			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	10/24/11
Project:	CTO WE63	Date Received:	10/27/11
Client Sample ID:	FT-GW435-7175	SDG No.:	C4354
Lab Sample ID:	C4354-06	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG038625.D	1		11/05/11	VG110411

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	0.5	U	0.2	1	ug/L
75-01-4	Vinyl Chloride	0.5	U	0.34	1	ug/L
75-69-4	Trichlorofluoromethane	0.5	U	0.35	1	ug/L
75-35-4	1,1-Dichloroethene	0.5	U	0.47	1	ug/L
67-64-1	Acetone	2.5	U	0.5	5	ug/L
75-09-2	Methylene Chloride	0.5	U	0.41	1	ug/L
156-60-5	trans-1,2-Dichloroethene	0.5	U	0.41	1	ug/L
75-34-3	1,1-Dichloroethane	0.5	U	0.36	1	ug/L
78-93-3	2-Butanone	2.5	U	1.3	5	ug/L
156-59-2	cis-1,2-Dichloroethene	0.5	U	0.35	1	ug/L
71-55-6	1,1,1-Trichloroethane	0.5	U	0.4	1	ug/L
71-43-2	Benzene	0.5	U	0.32	1	ug/L
107-06-2	1,2-Dichloroethane	0.5	U	0.48	1	ug/L
79-01-6	Trichloroethene	0.5	U	0.28	1	ug/L
108-88-3	Toluene	0.5	U	0.37	1	ug/L
79-00-5	1,1,2-Trichloroethane	0.5	U	0.38	1	ug/L
127-18-4	Tetrachloroethene	0.5	U	0.27	1	ug/L
100-41-4	Ethyl Benzene	0.5	U	0.2	1	ug/L
179601-23-1	m/p-Xylenes	1	U	0.95	2	ug/L
95-47-6	o-Xylene	0.5	U	0.43	1	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	0.5	U	0.31	1	ug/L
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	55.6		70 - 120	111%	SPK: 50
1868-53-7	Dibromofluoromethane	49.4		85 - 115	99%	SPK: 50
2037-26-5	Toluene-d8	32	*	85 - 120	64%	SPK: 50
460-00-4	4-Bromofluorobenzene	40.5		75 - 120	81%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	440667	3.9			
540-36-3	1,4-Difluorobenzene	863020	4.71			
3114-55-4	Chlorobenzene-d5	778908	9.67			
3855-82-1	1,4-Dichlorobenzene-d4	348814	13.37			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	10/25/11
Project:	CTO WE63	Date Received:	10/27/11
Client Sample ID:	FT-FB03-20111025	SDG No.:	C4354
Lab Sample ID:	C4354-09	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG038619.D	1		11/05/11	VG110411

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	0.5	U	0.2	1	ug/L
75-01-4	Vinyl Chloride	0.5	U	0.34	1	ug/L
75-69-4	Trichlorofluoromethane	0.5	U	0.35	1	ug/L
75-35-4	1,1-Dichloroethene	0.5	U	0.47	1	ug/L
67-64-1	Acetone	2.5	U	0.5	5	ug/L
75-09-2	Methylene Chloride	0.5	U	0.41	1	ug/L
156-60-5	trans-1,2-Dichloroethene	0.5	U	0.41	1	ug/L
75-34-3	1,1-Dichloroethane	0.5	U	0.36	1	ug/L
78-93-3	2-Butanone	2.5	U	1.3	5	ug/L
156-59-2	cis-1,2-Dichloroethene	0.5	U	0.35	1	ug/L
71-55-6	1,1,1-Trichloroethane	0.5	U	0.4	1	ug/L
71-43-2	Benzene	0.5	U	0.32	1	ug/L
107-06-2	1,2-Dichloroethane	0.5	U	0.48	1	ug/L
79-01-6	Trichloroethene	0.5	U	0.28	1	ug/L
108-88-3	Toluene	0.5	U	0.37	1	ug/L
79-00-5	1,1,2-Trichloroethane	0.5	U	0.38	1	ug/L
127-18-4	Tetrachloroethene	0.5	U	0.27	1	ug/L
100-41-4	Ethyl Benzene	0.5	U	0.2	1	ug/L
179601-23-1	m/p-Xylenes	1	U	0.95	2	ug/L
95-47-6	o-Xylene	0.5	U	0.43	1	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	0.5	U	0.31	1	ug/L
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	53.3		70 - 120	107%	SPK: 50
1868-53-7	Dibromofluoromethane	48.7		85 - 115	97%	SPK: 50
2037-26-5	Toluene-d8	41.6	*	85 - 120	83%	SPK: 50
460-00-4	4-Bromofluorobenzene	42.8		75 - 120	86%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	458723	3.92			
540-36-3	1,4-Difluorobenzene	914786	4.73			
3114-55-4	Chlorobenzene-d5	857458	9.69			
3855-82-1	1,4-Dichlorobenzene-d4	387198	13.39			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	10/25/11
Project:	CTO WE63	Date Received:	10/27/11
Client Sample ID:	FT-FB03-20111025	SDG No.:	C4354
Lab Sample ID:	C4354-09	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG038619.D	1		11/05/11	VG110411

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TENTATIVE IDENTIFIED COMPOUNDS						
75-27-4	Bromodichloromethane	1.5	J		5.78	ug/L
124-48-1	Dibromochloromethane	3.4	J		8.54	ug/L

U = Not Detected
LOQ = Limit of Quantitation
MDL = Method Detection Limit
LOD = Limit of Detection
E = Value Exceeds Calibration Range

J = Estimated Value
B = Analyte Found in Associated Method Blank
N = Presumptive Evidence of a Compound
* = Values outside of QC limits
D = Dilution

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	10/25/11
Project:	CTO WE63	Date Received:	10/27/11
Client Sample ID:	FT-RB03-20111025	SDG No.:	C4354
Lab Sample ID:	C4354-10	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG038659.D	1		11/07/11	VG110711

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	0.5	U	0.2	1	ug/L
75-01-4	Vinyl Chloride	0.5	U	0.34	1	ug/L
75-69-4	Trichlorofluoromethane	0.5	U	0.35	1	ug/L
75-35-4	1,1-Dichloroethene	0.5	U	0.47	1	ug/L
67-64-1	Acetone	2.5	U	0.5	5	ug/L
75-09-2	Methylene Chloride	0.5	U	0.41	1	ug/L
156-60-5	trans-1,2-Dichloroethene	0.5	U	0.41	1	ug/L
75-34-3	1,1-Dichloroethane	0.5	U	0.36	1	ug/L
78-93-3	2-Butanone	2.5	U	1.3	5	ug/L
156-59-2	cis-1,2-Dichloroethene	0.5	U	0.35	1	ug/L
71-55-6	1,1,1-Trichloroethane	0.5	U	0.4	1	ug/L
71-43-2	Benzene	0.5	U	0.32	1	ug/L
107-06-2	1,2-Dichloroethane	0.5	U	0.48	1	ug/L
79-01-6	Trichloroethene	0.5	U	0.28	1	ug/L
108-88-3	Toluene	0.5	U	0.37	1	ug/L
79-00-5	1,1,2-Trichloroethane	0.5	U	0.38	1	ug/L
127-18-4	Tetrachloroethene	0.5	U	0.27	1	ug/L
100-41-4	Ethyl Benzene	0.5	U	0.2	1	ug/L
179601-23-1	m/p-Xylenes	1	U	0.95	2	ug/L
95-47-6	o-Xylene	0.5	U	0.43	1	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	0.5	U	0.31	1	ug/L
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	50.5		70 - 120	101%	SPK: 50
1868-53-7	Dibromofluoromethane	50.6		85 - 115	101%	SPK: 50
2037-26-5	Toluene-d8	42.4		85 - 120	85%	SPK: 50
460-00-4	4-Bromofluorobenzene	42.4		75 - 120	85%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	819960	3.9			
540-36-3	1,4-Difluorobenzene	1314940	4.72			
3114-55-4	Chlorobenzene-d5	793179	9.69			
3855-82-1	1,4-Dichlorobenzene-d4	348593	13.38			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	10/24/11
Project:	CTO WE63	Date Received:	10/27/11
Client Sample ID:	FT-TB04-20111011	SDG No.:	C4354
Lab Sample ID:	C4354-01	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG038618.D	1		11/05/11	VG110411

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	0.5	U	0.2	1	ug/L
75-01-4	Vinyl Chloride	0.5	U	0.34	1	ug/L
75-69-4	Trichlorofluoromethane	0.5	U	0.35	1	ug/L
75-35-4	1,1-Dichloroethene	0.5	U	0.47	1	ug/L
67-64-1	Acetone	2.5	U	0.5	5	ug/L
75-09-2	Methylene Chloride	0.5	U	0.41	1	ug/L
156-60-5	trans-1,2-Dichloroethene	0.5	U	0.41	1	ug/L
75-34-3	1,1-Dichloroethane	0.5	U	0.36	1	ug/L
78-93-3	2-Butanone	2.5	U	1.3	5	ug/L
156-59-2	cis-1,2-Dichloroethene	0.5	U	0.35	1	ug/L
71-55-6	1,1,1-Trichloroethane	0.5	U	0.4	1	ug/L
71-43-2	Benzene	0.5	U	0.32	1	ug/L
107-06-2	1,2-Dichloroethane	0.5	U	0.48	1	ug/L
79-01-6	Trichloroethene	0.5	U	0.28	1	ug/L
108-88-3	Toluene	0.5	U	0.37	1	ug/L
79-00-5	1,1,2-Trichloroethane	0.5	U	0.38	1	ug/L
127-18-4	Tetrachloroethene	0.5	U	0.27	1	ug/L
100-41-4	Ethyl Benzene	0.5	U	0.2	1	ug/L
179601-23-1	m/p-Xylenes	1	U	0.95	2	ug/L
95-47-6	o-Xylene	0.5	U	0.43	1	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	0.5	U	0.31	1	ug/L
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	51.9		70 - 120	104%	SPK: 50
1868-53-7	Dibromofluoromethane	47.9		85 - 115	96%	SPK: 50
2037-26-5	Toluene-d8	42.9		85 - 120	86%	SPK: 50
460-00-4	4-Bromofluorobenzene	42.8		75 - 120	86%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	466146	3.91			
540-36-3	1,4-Difluorobenzene	956212	4.73			
3114-55-4	Chlorobenzene-d5	892465	9.68			
3855-82-1	1,4-Dichlorobenzene-d4	406234	13.39			

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Hit Summary Sheet
SW-846

SDG No.: C4354

Client: Tetra Tech NUS, Inc.

Sample ID	Client ID		Parameter		Concentration	C	RDL	MDL	Units
Client ID:	**FT-FB03-20111025**								
C4354-09	FT-FB03-20111025	WATER	Bromodichloromethane	*	1.50	J	1.0	0.36	ug/L
C4354-09	FT-FB03-20111025	WATER	Dibromochloromethane	*	3.40	J	1.0	0.20	ug/L
			Total Tics :			**4.90**			
			Total Concentration:			**4.90**			
Client ID:	**FT-GW433-4145**								
C4354-02	FT-GW433-4145	WATER	Chloroform	*	0.75	J	1.0	0.34	ug/L
			Total Tics :			**0.75**			
			Total Concentration:			**0.75**			
Client ID:	**FT-GW433-5155**								
C4354-04	FT-GW433-5155	WATER	Chloroform	*	1.30	J	1.0	0.34	ug/L
			Total Tics :			**1.30**			
			Total Concentration:			**1.30**			
Client ID:	**FT-GW433-5963**								
C4354-05	FT-GW433-5963	WATER	Chloroform	*	2.20	J	1.0	0.34	ug/L
			Total Tics :			**2.20**			
			Total Concentration:			**2.20**			
Client ID:	**FT-GW433-7175**								
C4354-03	FT-GW433-7175	WATER	Chloroform	*	0.40	J	1.0	0.34	ug/L
			Total Tics :			**0.40**			
			Total Concentration:			**0.40**			
Client ID:	**FT-GW435-3135**								
C4354-08	FT-GW435-3135	WATER	Acetone		4.10	J	5.0	0.50	ug/L
C4354-08	FT-GW435-3135	WATER	1,1-Dichloroethane		1.10		1.0	0.36	ug/L
C4354-08	FT-GW435-3135	WATER	2-Butanone		6.20		5.0	1.3	ug/L
C4354-08	FT-GW435-3135	WATER	Trichloroethene		16.00		1.0	0.28	ug/L
			Total Voc :			**27.40**			
C4354-08	FT-GW435-3135	WATER	Tert butyl alcohol	*	22.00	J	5.0	0.50	ug/L
C4354-08	FT-GW435-3135	WATER	Methyl Acetate	*	1.40	J	1.0	0.20	ug/L
C4354-08	FT-GW435-3135	WATER	Vinyl Acetate	*	1.70	J	5.0	1.0	ug/L
C4354-08	FT-GW435-3135	WATER	4-Methyl-2-Pentanone	*	5.50	J	5.0	2.1	ug/L
C4354-08	FT-GW435-3135	WATER	2-Hexanone	*	6.60	J	5.0	1.9	ug/L
C4354-08	FT-GW435-3135	WATER	Naphthalene	*	1.70	J	1.0	0.20	ug/L
			Total Tics :			**38.90**			
			Total Concentration:			**66.30**			
Client ID:	**FT-GW435-5155**								
C4354-12	FT-GW435-5155	WATER	Chloroform	*	1.40	J	1.0	0.34	ug/L
			Total Tics :			**1.40**			
			Total Concentration:			**1.40**			
Client ID:	**FT-GW435-6165**								
C4354-11	FT-GW435-6165	WATER	Acetone		1.40	J	5.0	0.50	ug/L
			Total Voc :			**1.40**			

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Hit Summary Sheet
SW-846

SDG No.: **C4354**

Client: **Tetra Tech NUS, Inc.**

Sample ID	Client ID		Parameter	Concentration		C	RDL	MDL	Units
C4354-11	FT-GW435-6165	WATER	Chloroform	*	0.61	J	1.0	0.34	ug/L
			Total Tics :			**0.61**			
			Total Concentration:			**2.01**			

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DATA PACKAGE

VOLATILE ORGANICS

PROJECT NAME : CTO WE63

TETRA TECH NUS, INC.

661 Anderson Drive

Pittsburgh, Pennsylvania - 15220-2745

Phone No: 4129218361

ORDER ID : C4355

ATTENTION : David Brayack

ACCREDITED IN ACCORDANCE WITH nelac

DoD ELAP

CHEMTECH 284 Sheffield Street, Mountainside, New Jersey 07092 Phone : 908 789 8900 Fax : 908 789 8922

Cover Page

Order ID : C4355

Project ID : CTO WE63

Client : Tetra Tech NUS, Inc.

Lab Sample Number	Client Sample Number
C4355-01	FT-GW434-7175
C4355-02	FT-GW434-2630
C4355-03	FT-GW434-3135
C4355-04	FT-GW434-5155
C4355-05	FT-GW434-4145
C4355-06	FT-GW434-6165
C4355-07	FT-DUP05-20111025
C4355-08	FT-DUP06-20111025
C4355-09	FT-GW436-7175
C4355-10	FT-GW436-5155
C4355-11	FT-GW436-3135
C4355-12	FT-GW436-6165
C4355-13	FT-GW436-4145
C4355-14	FT-GW436-2630

I certify that the data package is in compliance with the terms and conditions of the contract,both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hard copy data package has been authorized by the laboratory manager or his designee, as verified by the following signature.

Signature : _____

NYDOH CERTIFICATION NO - 11376

NJDEP CERTIFICATION NO - 20012

Table of Contents

DATA SUMMARY 9

VOLATILES DATA 106

VOLATILES QC DATA 107

VOLATILES SAMPLE DATA 130

VOLATILES CALIBRATION DATA 833

VOLATILES RAW QC DATA 944

VOLATILES MISCELLANEOUSDATA 1038

SHIPPING AND RECEIVING DOCUMENTATION 1070

END OF ANALYTICAL RESULTS 1075

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CASE NARRATIVE

Tetra Tech NUS, Inc.
Project Name: CTO WE63
Project # N/A
Chemtech Project # C4355
Test Name: VOCMS Group1

A. Number of Samples and Date of Receipt:
14 Water samples were received on 10/27/2011.

B. Parameters
According to the Chain of Custody document, the following analyses were requested: VOCMS Group1. This data package contains results for VOCMS Group1.

C. Analytical Techniques:
The analysis performed on instrument MSVOA_G were done using GC column RTX-VMS which is 20 meters, 0.18 mm id, 1.0 um df, Restek Cat. #49914. The Trap was supplied by OI Analytical, OI #10 Trap , OI Eclipse 4660 Concentrator.The analysis performed on instrument MSVOA_H were done using GC column RTX-VMS which is 20 meters, 0.18 mm id, 1.0 um df, Restek Cat. #49914. The Trap was supplied BY OI Analytical, OI #10 Trap , OI Eclipse 4660 Concentrator.The analysis of VOCMS Group1 was based on method 8260/5030.

D. QA/ QC Samples:
The Holding Times were met for all analysis.
The Surrogate recoveries met the acceptable criteria except for following:
FT-GW434-7175 [4-Bromofluorobenzene - 121%],
FT-GW434-7175RE [Toluene-d8 - 79%],
FT-GW434-2630RE [Toluene-d8 - 79%],
FT-GW434-3135 [4-Bromofluorobenzene - 121%],
FT-GW434-3135RE [4-Bromofluorobenzene - 73%, Toluene-d8 - 75%],
FT-GW434-5155 [4-Bromofluorobenzene - 123%],
FT-GW434-5155RE [4-Bromofluorobenzene - 73%, Toluene-d8 - 76%],
FT-GW434-4145 [4-Bromofluorobenzene - 121%],
FT-GW434-4145RE [Toluene-d8 - 76%],
FT-GW434-6165RE [4-Bromofluorobenzene - 72%, Toluene-d8 - 74%],
FT-DUP05-20111025 [4-Bromofluorobenzene - 121%],
FT-DUP05-20111025RE [4-Bromofluorobenzene - 73%, Toluene-d8 - 82%],
FT-DUP06-20111025RE [4-Bromofluorobenzene - 73%, Toluene-d8 - 74%],
FT-GW436-7175RE [4-Bromofluorobenzene - 73%, Toluene-d8 - 76%],
FT-GW436-5155RE [4-Bromofluorobenzene - 74%, Toluene-d8 - 81%],
FT-GW436-3135 [4-Bromofluorobenzene - 122%],
FT-GW436-3135RE [4-Bromofluorobenzene - 74%, Toluene-d8 - 78%],
FT-GW436-6165 [4-Bromofluorobenzene - 121%],
FT-GW436-6165RE [4-Bromofluorobenzene - 74%, Toluene-d8 - 79%],

FT-GW436-4145 [4-Bromofluorobenzene - 122%],
FT-GW436-4145RE [Toluene-d8 - 78%],
FT-GW436-2630RE [4-Bromofluorobenzene - 71% , Toluene-d8 - 75%].
Most of the above mention Samples did not meet the DOD limit but the recovery was within In-house limits.
The in house limits are, 4-Bromofluorobenzene (59-135), Toluene-d8 (66-126), 1,2-Dichloroethane-d4 (61-142) , Dibromofluoromethane (70-134) .
The Internal Standards Areas met the acceptable requirements.
The Retention Times were acceptable for all samples.
The RPD recoveries met criteria.
The Blank Spike for {BSH1107W1} with File ID: VH044163.D met requirements for all samples except for Dichlorodifluoromethane [125%].
The Blank Spike Duplicate for {BSH1107W4} with File ID: VH044189.D met requirements for all samples except for Dichlorodifluoromethane [135%].
The Blank analysis did not indicate the presence of lab contamination.
The Initial Calibration met the requirements.
The Continuous Calibration File ID VH044185.D met the requirements except for Dichlorodifluoromethane, Vinyl Chloride, Acetone and 1,1,2,2-Tetrachloroethane .
The Tuning criteria met requirements.

E. Additional Comments:
Samples were first analyzed with 5 PPB (lowest standard) and re-analyzed with 1PPB (lowest standard) of Initial Calibration in Instrument MSVOA_H and MSVOA_G respectively. The re-analysis did not meet surrogate recovery based on DOD limits, so, both the analysis is included.

Please use %D calculated based on Avg RF and CCRF for all compounds using Average Response Factor when the %RSD value for a compound is <15% for the Initial Calibration curve and use %D calculated based on Amount added and Calculated amount for all compounds using Linear Regression when the %RSD value for a compound is > 15% for the Initial Calibration curve for SW-846 analysis.

F. Manual Integration Comments:
Please refer to the Manual integration Report included with the Run Logs for information on the manual integrations performed.

I certify that the data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. The laboratory manager or his designee, as verified by the following signature has authorized release of the data contained in this hard copy data package.

Signature_____

I Hildred V Reyes, as the designated Quality Assurance ~~Officer~~ Supervisor, hereby attest that all electronic deliverables have been thoroughly reviewed and are in agreement with the associated hardcopy data. The enclosed electronic files have been reviewed for accuracy (including significant figures), completeness and format. The laboratory will be responsible for any labor time necessary to correct enclosed electronic deliverables that have been found to be in error. I can be reached at (908) 789-8900 if there are any questions or problems with the enclosed electronic deliverables.

Signature: Hildred V Reyes Title: QA/QC Supervisor Date: 11/29/11

CHEMTECH

284 Sheffield Street Mountainside NJ 07092
Tel. 908-789-8900 Fax: 908-789-8922

DATA REPORTING QUALIFIERS- ORGANIC

For reporting results, the following " Result Qualifiers" are used:

Value	If the result is a value greater than or equal to the detection limit, report the value
U	Indicates the compound was analyzed for but was not detected. Report the minimum detection limit for the sample with the U. This is the detection limit attainable for this particular sample based on any concentration or dilution that may have been required.
ND	Indicates the compound was analyzed for but was not detected
J	Indicates an estimated value**.** This flag is used: (1) When estimating a concentration for a tentatively identified compound (library search hits, where a 1:1 response is assumed.) (2) When the mass spectral data indicated the identification, however the result was less than the specified detection limit greater than zero. If the detection limit was 10ug/L, and a concentration of 3ug/L was calculated, report as 3 J.
B	Indicates the analyte was found in the blank as well as the sample.
E	Indicates the analyte 's concentration exceeds the calibrated range of the instrument for that specific analysis.
D	This flag identifies all compounds identified in an analysis at a secondary dilution factor.
P	This flag is used for Pesticide/PCB target analyte when there is >25% difference for detected concentrations between the two GC columns.
N	This flag indicates presumptive evidence of a compound. This is only used for tentatively identified compounds (TICs), where the identification is based on a mass spectral library search. For generic characterization of a TIC, such as chlorinated hydrocarbon, the flag is not used.
A	This flag indicates that a Tentatively Identified Compound is a suspected Aldol-condensation product.

APPENDIX A

QA REVIEW GENERAL DOCUMENTATION

Project #:__C4355_____

Completed

For thorough review, the report must have the following:

GENERAL:

Are all original paperwork present (chain of custody, record of communication, airbill, sample management lab chronicle, login page) ___✓_____
Check chain-of-custody for proper relinquish/return of samples ____✓_____
Is the chain of custody signed and complete ____✓_____
Check internal chain-of-custody for proper relinquish/return of samples /sample extracts _____✓____
Collect information for each project id from server. Were all requirements followed _____✓_____

COVER PAGE:

Do numbers of samples correspond to the number of samples in the Chain of Custody and on login page ___✓_____
Do lab numbers and client Ids on cover page agree with the Chain of Custody ____✓_____

CHAIN OF CUSTODY:

Do requested analyses on Chain of Custody agree with form I results ___✓_____
Do requested analyses on Chain of Custody agree with the log-in page ____✓_____
Were the correct method log-in for analysis according to the Analytical Request and Chain of Custody ____✓_____
Were the samples received within hold time ____✓_____
Were any problems found with the samples at arrival recorded in the Sample Management Laboratory Chronicle ____✓_____

ANALYTICAL:

Was method requirement followed? _____✓_____
Was client requirement followed? ____✓_____
Does the case narrative summarize all QC failure? _____✓_____
All runlogs reviewed for manual integration requirements _____✓_____
All manual calculations and /or hand notations verified _____✓_____

1st Level QA Review Signature:__ _____ Date:__11/29/11_____

2nd Level QA Review Signature:_____ Date:_____

DATA SUMMARY

CHEMTECH 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	10/25/11
Project:	CTO WE63	Date Received:	10/27/11
Client Sample ID:	FT-GW434-2630	SDG No.:	C4355
Lab Sample ID:	C4355-02	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VH044179.D	1		11/07/11	vh110711

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	2.5	U	0.55	5	ug/L
75-01-4	Vinyl Chloride	2.5	U	0.34	5	ug/L
75-69-4	Trichlorofluoromethane	2.5	U	0.35	5	ug/L
75-35-4	1,1-Dichloroethene	2.5	U	0.47	5	ug/L
67-64-1	Acetone	12.5	U	2.8	25	ug/L
75-09-2	Methylene Chloride	2.5	U	0.41	5	ug/L
156-60-5	trans-1,2-Dichloroethene	2.5	U	0.41	5	ug/L
75-34-3	1,1-Dichloroethane	2.5	U	0.36	5	ug/L
78-93-3	2-Butanone	12.5	U	1.3	25	ug/L
156-59-2	cis-1,2-Dichloroethene	2.5	U	0.35	5	ug/L
71-55-6	1,1,1-Trichloroethane	2.5	U	0.4	5	ug/L
71-43-2	Benzene	2.5	U	0.32	5	ug/L
107-06-2	1,2-Dichloroethane	2.5	U	0.48	5	ug/L
79-01-6	Trichloroethene	2.5	U	0.28	5	ug/L
108-88-3	Toluene	2.5	U	0.37	5	ug/L
79-00-5	1,1,2-Trichloroethane	2.5	U	0.38	5	ug/L
127-18-4	Tetrachloroethene	2.5	U	0.27	5	ug/L
100-41-4	Ethyl Benzene	2.5	U	0.53	5	ug/L
179601-23-1	m/p-Xylenes	5	U	0.95	10	ug/L
95-47-6	o-Xylene	2.5	U	0.43	5	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	2.5	U	0.31	5	ug/L
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	52.4		70 - 120	105%	SPK: 50
1868-53-7	Dibromofluoromethane	50.5		85 - 115	101%	SPK: 50
2037-26-5	Toluene-d8	54.3		85 - 120	109%	SPK: 50
460-00-4	4-Bromofluorobenzene	56.6		75 - 120	113%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	418461	4.93			
540-36-3	1,4-Difluorobenzene	687893	5.64			
3114-55-4	Chlorobenzene-d5	706534	9.78			
3855-82-1	1,4-Dichlorobenzene-d4	362595	12.52			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	10/25/11
Project:	CTO WE63	Date Received:	10/27/11
Client Sample ID:	FT-GW434-2630RE	SDG No.:	C4355
Lab Sample ID:	C4355-02RE	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG038685.D	1		11/08/11	VG110811

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	0.5	U	0.2	1	ug/L
75-01-4	Vinyl Chloride	0.5	U	0.34	1	ug/L
75-69-4	Trichlorofluoromethane	0.5	U	0.35	1	ug/L
75-35-4	1,1-Dichloroethene	0.5	U	0.47	1	ug/L
67-64-1	Acetone	2.5	U	0.5	5	ug/L
75-09-2	Methylene Chloride	0.5	U	0.41	1	ug/L
156-60-5	trans-1,2-Dichloroethene	0.5	U	0.41	1	ug/L
75-34-3	1,1-Dichloroethane	0.5	U	0.36	1	ug/L
78-93-3	2-Butanone	2.5	U	1.3	5	ug/L
156-59-2	cis-1,2-Dichloroethene	0.5	U	0.35	1	ug/L
71-55-6	1,1,1-Trichloroethane	0.5	U	0.4	1	ug/L
71-43-2	Benzene	0.5	U	0.32	1	ug/L
107-06-2	1,2-Dichloroethane	0.5	U	0.48	1	ug/L
79-01-6	Trichloroethene	0.5	U	0.28	1	ug/L
108-88-3	Toluene	0.5	U	0.37	1	ug/L
79-00-5	1,1,2-Trichloroethane	0.5	U	0.38	1	ug/L
127-18-4	Tetrachloroethene	0.5	U	0.27	1	ug/L
100-41-4	Ethyl Benzene	0.5	U	0.2	1	ug/L
179601-23-1	m/p-Xylenes	1	U	0.95	2	ug/L
95-47-6	o-Xylene	0.5	U	0.43	1	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	0.5	U	0.31	1	ug/L
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	53.4		70 - 120	107%	SPK: 50
1868-53-7	Dibromofluoromethane	53.1		85 - 115	106%	SPK: 50
2037-26-5	Toluene-d8	39.6	*	85 - 120	79%	SPK: 50
460-00-4	4-Bromofluorobenzene	37.6		75 - 120	75%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	735205	3.91			
540-36-3	1,4-Difluorobenzene	1217580	4.72			
3114-55-4	Chlorobenzene-d5	653716	9.68			
3855-82-1	1,4-Dichlorobenzene-d4	265924	13.38			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	10/25/11
Project:	CTO WE63	Date Received:	10/27/11
Client Sample ID:	FT-DUP06-20111025	SDG No.:	C4355
Lab Sample ID:	C4355-08	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VH044194.D	1		11/08/11	VH110711

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	2.5	U	0.55	5	ug/L
75-01-4	Vinyl Chloride	2.5	U	0.34	5	ug/L
75-69-4	Trichlorofluoromethane	2.5	U	0.35	5	ug/L
75-35-4	1,1-Dichloroethene	2.5	U	0.47	5	ug/L
67-64-1	Acetone	14	J	2.8	25	ug/L
75-09-2	Methylene Chloride	2.5	U	0.41	5	ug/L
156-60-5	trans-1,2-Dichloroethene	2.5	U	0.41	5	ug/L
75-34-3	1,1-Dichloroethane	2.5	U	0.36	5	ug/L
78-93-3	2-Butanone	12.5	U	1.3	25	ug/L
156-59-2	cis-1,2-Dichloroethene	2.5	U	0.35	5	ug/L
71-55-6	1,1,1-Trichloroethane	2.5	U	0.4	5	ug/L
71-43-2	Benzene	2.5	U	0.32	5	ug/L
107-06-2	1,2-Dichloroethane	2.5	U	0.48	5	ug/L
79-01-6	Trichloroethene	2.5	U	0.28	5	ug/L
108-88-3	Toluene	2.5	U	0.37	5	ug/L
79-00-5	1,1,2-Trichloroethane	2.5	U	0.38	5	ug/L
127-18-4	Tetrachloroethene	2.5	U	0.27	5	ug/L
100-41-4	Ethyl Benzene	2.5	U	0.53	5	ug/L
179601-23-1	m/p-Xylenes	5	U	0.95	10	ug/L
95-47-6	o-Xylene	2.5	U	0.43	5	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	2.5	U	0.31	5	ug/L
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	54.8		70 - 120	110%	SPK: 50
1868-53-7	Dibromofluoromethane	49.2		85 - 115	98%	SPK: 50
2037-26-5	Toluene-d8	52.4		85 - 120	105%	SPK: 50
460-00-4	4-Bromofluorobenzene	59.7		75 - 120	119%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	386165	4.92			
540-36-3	1,4-Difluorobenzene	656138	5.64			
3114-55-4	Chlorobenzene-d5	694830	9.79			
3855-82-1	1,4-Dichlorobenzene-d4	343691	12.53			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	10/25/11
Project:	CTO WE63	Date Received:	10/27/11
Client Sample ID:	FT-DUP06-20111025RE	SDG No.:	C4355
Lab Sample ID:	C4355-08RE	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG038691.D	1		11/08/11	VG110811

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	0.5	U	0.2	1	ug/L
75-01-4	Vinyl Chloride	0.5	U	0.34	1	ug/L
75-69-4	Trichlorofluoromethane	0.5	U	0.35	1	ug/L
75-35-4	1,1-Dichloroethene	0.5	U	0.47	1	ug/L
67-64-1	Acetone	2.5	U	0.5	5	ug/L
75-09-2	Methylene Chloride	0.5	U	0.41	1	ug/L
156-60-5	trans-1,2-Dichloroethene	0.5	U	0.41	1	ug/L
75-34-3	1,1-Dichloroethane	0.5	U	0.36	1	ug/L
78-93-3	2-Butanone	2.5	U	1.3	5	ug/L
156-59-2	cis-1,2-Dichloroethene	0.5	U	0.35	1	ug/L
71-55-6	1,1,1-Trichloroethane	0.5	U	0.4	1	ug/L
71-43-2	Benzene	0.5	U	0.32	1	ug/L
107-06-2	1,2-Dichloroethane	0.5	U	0.48	1	ug/L
79-01-6	Trichloroethene	0.5	U	0.28	1	ug/L
108-88-3	Toluene	0.5	U	0.37	1	ug/L
79-00-5	1,1,2-Trichloroethane	0.5	U	0.38	1	ug/L
127-18-4	Tetrachloroethene	0.5	U	0.27	1	ug/L
100-41-4	Ethyl Benzene	0.5	U	0.2	1	ug/L
179601-23-1	m/p-Xylenes	1	U	0.95	2	ug/L
95-47-6	o-Xylene	0.5	U	0.43	1	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	0.5	U	0.31	1	ug/L
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	54.1		70 - 120	108%	SPK: 50
1868-53-7	Dibromofluoromethane	52.3		85 - 115	105%	SPK: 50
2037-26-5	Toluene-d8	37.2	*	85 - 120	74%	SPK: 50
460-00-4	4-Bromofluorobenzene	36.4	*	75 - 120	73%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	696178	3.91			
540-36-3	1,4-Difluorobenzene	1146710	4.73			
3114-55-4	Chlorobenzene-d5	601802	9.68			
3855-82-1	1,4-Dichlorobenzene-d4	245038	13.39			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	10/25/11
Project:	CTO WE63	Date Received:	10/27/11
Client Sample ID:	FT-GW434-3135	SDG No.:	C4355
Lab Sample ID:	C4355-03	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VH044180.D	1		11/07/11	vh110711

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	2.5	U	0.55	5	ug/L
75-01-4	Vinyl Chloride	2.5	U	0.34	5	ug/L
75-69-4	Trichlorofluoromethane	2.5	U	0.35	5	ug/L
75-35-4	1,1-Dichloroethene	2.5	U	0.47	5	ug/L
67-64-1	Acetone	13	J	2.8	25	ug/L
75-09-2	Methylene Chloride	2.5	U	0.41	5	ug/L
156-60-5	trans-1,2-Dichloroethene	2.5	U	0.41	5	ug/L
75-34-3	1,1-Dichloroethane	4.5	J	0.36	5	ug/L
78-93-3	2-Butanone	12.5	U	1.3	25	ug/L
156-59-2	cis-1,2-Dichloroethene	2.5	U	0.35	5	ug/L
71-55-6	1,1,1-Trichloroethane	2.5	U	0.4	5	ug/L
71-43-2	Benzene	2.5	U	0.32	5	ug/L
107-06-2	1,2-Dichloroethane	2.5	U	0.48	5	ug/L
79-01-6	Trichloroethene	49		0.28	5	ug/L
108-88-3	Toluene	2.5	U	0.37	5	ug/L
79-00-5	1,1,2-Trichloroethane	2.5	U	0.38	5	ug/L
127-18-4	Tetrachloroethene	2.5	U	0.27	5	ug/L
100-41-4	Ethyl Benzene	2.5	U	0.53	5	ug/L
179601-23-1	m/p-Xylenes	5	U	0.95	10	ug/L
95-47-6	o-Xylene	2.5	U	0.43	5	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	2.5	U	0.31	5	ug/L
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	52.5		70 - 120	105%	SPK: 50
1868-53-7	Dibromofluoromethane	51		85 - 115	102%	SPK: 50
2037-26-5	Toluene-d8	55.4		85 - 120	111%	SPK: 50
460-00-4	4-Bromofluorobenzene	60.7	*	75 - 120	121%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	408942	4.92			
540-36-3	1,4-Difluorobenzene	663021	5.65			
3114-55-4	Chlorobenzene-d5	712736	9.78			
3855-82-1	1,4-Dichlorobenzene-d4	360638	12.52			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	10/25/11
Project:	CTO WE63	Date Received:	10/27/11
Client Sample ID:	FT-GW434-3135RE	SDG No.:	C4355
Lab Sample ID:	C4355-03RE	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG038686.D	1		11/08/11	VG110811

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	0.5	U	0.2	1	ug/L
75-01-4	Vinyl Chloride	0.5	U	0.34	1	ug/L
75-69-4	Trichlorofluoromethane	0.5	U	0.35	1	ug/L
75-35-4	1,1-Dichloroethene	0.5	U	0.47	1	ug/L
67-64-1	Acetone	2.5	U	0.5	5	ug/L
75-09-2	Methylene Chloride	0.5	U	0.41	1	ug/L
156-60-5	trans-1,2-Dichloroethene	0.5	U	0.41	1	ug/L
75-34-3	1,1-Dichloroethane	4.2		0.36	1	ug/L
78-93-3	2-Butanone	2.5	U	1.3	5	ug/L
156-59-2	cis-1,2-Dichloroethene	0.5	U	0.35	1	ug/L
71-55-6	1,1,1-Trichloroethane	0.5	U	0.4	1	ug/L
71-43-2	Benzene	0.5	U	0.32	1	ug/L
107-06-2	1,2-Dichloroethane	0.5	U	0.48	1	ug/L
79-01-6	Trichloroethene	42		0.28	1	ug/L
108-88-3	Toluene	0.5	U	0.37	1	ug/L
79-00-5	1,1,2-Trichloroethane	0.5	U	0.38	1	ug/L
127-18-4	Tetrachloroethene	0.5	U	0.27	1	ug/L
100-41-4	Ethyl Benzene	0.5	U	0.2	1	ug/L
179601-23-1	m/p-Xylenes	1	U	0.95	2	ug/L
95-47-6	o-Xylene	0.5	U	0.43	1	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	0.5	U	0.31	1	ug/L
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	49.4		70 - 120	99%	SPK: 50
1868-53-7	Dibromofluoromethane	51.4		85 - 115	103%	SPK: 50
2037-26-5	Toluene-d8	37.7	*	85 - 120	75%	SPK: 50
460-00-4	4-Bromofluorobenzene	36.5	*	75 - 120	73%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	716338	3.92			
540-36-3	1,4-Difluorobenzene	1163900	4.72			
3114-55-4	Chlorobenzene-d5	606437	9.69			
3855-82-1	1,4-Dichlorobenzene-d4	247373	13.39			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	10/25/11
Project:	CTO WE63	Date Received:	10/27/11
Client Sample ID:	FT-GW434-4145	SDG No.:	C4355
Lab Sample ID:	C4355-05	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VH044191.D	1		11/08/11	VH110711

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	2.5	U	0.55	5	ug/L
75-01-4	Vinyl Chloride	2.5	U	0.34	5	ug/L
75-69-4	Trichlorofluoromethane	2.5	U	0.35	5	ug/L
75-35-4	1,1-Dichloroethene	2.5	U	0.47	5	ug/L
67-64-1	Acetone	14	J	2.8	25	ug/L
75-09-2	Methylene Chloride	2.5	U	0.41	5	ug/L
156-60-5	trans-1,2-Dichloroethene	2.5	U	0.41	5	ug/L
75-34-3	1,1-Dichloroethane	2.5	U	0.36	5	ug/L
78-93-3	2-Butanone	12.5	U	1.3	25	ug/L
156-59-2	cis-1,2-Dichloroethene	2.5	U	0.35	5	ug/L
71-55-6	1,1,1-Trichloroethane	2.5	U	0.4	5	ug/L
71-43-2	Benzene	2.5	U	0.32	5	ug/L
107-06-2	1,2-Dichloroethane	2.5	U	0.48	5	ug/L
79-01-6	Trichloroethene	2.5	U	0.28	5	ug/L
108-88-3	Toluene	2.5	U	0.37	5	ug/L
79-00-5	1,1,2-Trichloroethane	2.5	U	0.38	5	ug/L
127-18-4	Tetrachloroethene	2.5	U	0.27	5	ug/L
100-41-4	Ethyl Benzene	2.5	U	0.53	5	ug/L
179601-23-1	m/p-Xylenes	5	U	0.95	10	ug/L
95-47-6	o-Xylene	2.5	U	0.43	5	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	2.5	U	0.31	5	ug/L
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	53.8		70 - 120	108%	SPK: 50
1868-53-7	Dibromofluoromethane	48.6		85 - 115	97%	SPK: 50
2037-26-5	Toluene-d8	53.7		85 - 120	107%	SPK: 50
460-00-4	4-Bromofluorobenzene	60.4	*	75 - 120	121%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	399432	4.93			
540-36-3	1,4-Difluorobenzene	673900	5.65			
3114-55-4	Chlorobenzene-d5	742584	9.78			
3855-82-1	1,4-Dichlorobenzene-d4	378431	12.52			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	10/25/11
Project:	CTO WE63	Date Received:	10/27/11
Client Sample ID:	FT-GW434-4145RE	SDG No.:	C4355
Lab Sample ID:	C4355-05RE	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG038688.D	1		11/08/11	VG110811

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	0.5	U	0.2	1	ug/L
75-01-4	Vinyl Chloride	0.5	U	0.34	1	ug/L
75-69-4	Trichlorofluoromethane	0.5	U	0.35	1	ug/L
75-35-4	1,1-Dichloroethene	0.5	U	0.47	1	ug/L
67-64-1	Acetone	2.5	U	0.5	5	ug/L
75-09-2	Methylene Chloride	0.5	U	0.41	1	ug/L
156-60-5	trans-1,2-Dichloroethene	0.5	U	0.41	1	ug/L
75-34-3	1,1-Dichloroethane	0.5	U	0.36	1	ug/L
78-93-3	2-Butanone	2.5	U	1.3	5	ug/L
156-59-2	cis-1,2-Dichloroethene	0.5	U	0.35	1	ug/L
71-55-6	1,1,1-Trichloroethane	0.5	U	0.4	1	ug/L
71-43-2	Benzene	0.5	U	0.32	1	ug/L
107-06-2	1,2-Dichloroethane	0.5	U	0.48	1	ug/L
79-01-6	Trichloroethene	0.5	U	0.28	1	ug/L
108-88-3	Toluene	0.5	U	0.37	1	ug/L
79-00-5	1,1,2-Trichloroethane	0.5	U	0.38	1	ug/L
127-18-4	Tetrachloroethene	0.5	U	0.27	1	ug/L
100-41-4	Ethyl Benzene	0.5	U	0.2	1	ug/L
179601-23-1	m/p-Xylenes	1	U	0.95	2	ug/L
95-47-6	o-Xylene	0.5	U	0.43	1	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	0.5	U	0.31	1	ug/L
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	51.8		70 - 120	104%	SPK: 50
1868-53-7	Dibromofluoromethane	51.8		85 - 115	104%	SPK: 50
2037-26-5	Toluene-d8	37.9	*	85 - 120	76%	SPK: 50
460-00-4	4-Bromofluorobenzene	38		75 - 120	76%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	711381	3.91			
540-36-3	1,4-Difluorobenzene	1167040	4.73			
3114-55-4	Chlorobenzene-d5	597517	9.69			
3855-82-1	1,4-Dichlorobenzene-d4	252410	13.39			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	10/25/11
Project:	CTO WE63	Date Received:	10/27/11
Client Sample ID:	FT-GW434-5155	SDG No.:	C4355
Lab Sample ID:	C4355-04	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VH044190.D	1		11/08/11	VH110711

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	2.5	U	0.55	5	ug/L
75-01-4	Vinyl Chloride	2.5	U	0.34	5	ug/L
75-69-4	Trichlorofluoromethane	2.5	U	0.35	5	ug/L
75-35-4	1,1-Dichloroethene	2.5	U	0.47	5	ug/L
67-64-1	Acetone	16	J	2.8	25	ug/L
75-09-2	Methylene Chloride	2.5	U	0.41	5	ug/L
156-60-5	trans-1,2-Dichloroethene	2.5	U	0.41	5	ug/L
75-34-3	1,1-Dichloroethane	2.5	U	0.36	5	ug/L
78-93-3	2-Butanone	12.5	U	1.3	25	ug/L
156-59-2	cis-1,2-Dichloroethene	2.5	U	0.35	5	ug/L
71-55-6	1,1,1-Trichloroethane	2.5	U	0.4	5	ug/L
71-43-2	Benzene	2.5	U	0.32	5	ug/L
107-06-2	1,2-Dichloroethane	2.5	U	0.48	5	ug/L
79-01-6	Trichloroethene	2.5	U	0.28	5	ug/L
108-88-3	Toluene	2.5	U	0.37	5	ug/L
79-00-5	1,1,2-Trichloroethane	2.5	U	0.38	5	ug/L
127-18-4	Tetrachloroethene	2.5	U	0.27	5	ug/L
100-41-4	Ethyl Benzene	2.5	U	0.53	5	ug/L
179601-23-1	m/p-Xylenes	5	U	0.95	10	ug/L
95-47-6	o-Xylene	2.5	U	0.43	5	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	2.5	U	0.31	5	ug/L
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	51.7		70 - 120	103%	SPK: 50
1868-53-7	Dibromofluoromethane	49.9		85 - 115	100%	SPK: 50
2037-26-5	Toluene-d8	53.3		85 - 120	107%	SPK: 50
460-00-4	4-Bromofluorobenzene	61.3	*	75 - 120	123%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	414992	4.93			
540-36-3	1,4-Difluorobenzene	687631	5.65			
3114-55-4	Chlorobenzene-d5	719037	9.78			
3855-82-1	1,4-Dichlorobenzene-d4	370047	12.53			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	10/25/11
Project:	CTO WE63	Date Received:	10/27/11
Client Sample ID:	FT-GW434-5155RE	SDG No.:	C4355
Lab Sample ID:	C4355-04RE	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG038687.D	1		11/08/11	VG110811

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	0.5	U	0.2	1	ug/L
75-01-4	Vinyl Chloride	0.5	U	0.34	1	ug/L
75-69-4	Trichlorofluoromethane	0.5	U	0.35	1	ug/L
75-35-4	1,1-Dichloroethene	0.5	U	0.47	1	ug/L
67-64-1	Acetone	2.5	U	0.5	5	ug/L
75-09-2	Methylene Chloride	0.5	U	0.41	1	ug/L
156-60-5	trans-1,2-Dichloroethene	0.5	U	0.41	1	ug/L
75-34-3	1,1-Dichloroethane	0.5	U	0.36	1	ug/L
78-93-3	2-Butanone	2.5	U	1.3	5	ug/L
156-59-2	cis-1,2-Dichloroethene	0.5	U	0.35	1	ug/L
71-55-6	1,1,1-Trichloroethane	0.5	U	0.4	1	ug/L
71-43-2	Benzene	0.5	U	0.32	1	ug/L
107-06-2	1,2-Dichloroethane	0.5	U	0.48	1	ug/L
79-01-6	Trichloroethene	0.5	U	0.28	1	ug/L
108-88-3	Toluene	0.5	U	0.37	1	ug/L
79-00-5	1,1,2-Trichloroethane	0.5	U	0.38	1	ug/L
127-18-4	Tetrachloroethene	0.5	U	0.27	1	ug/L
100-41-4	Ethyl Benzene	0.5	U	0.2	1	ug/L
179601-23-1	m/p-Xylenes	1	U	0.95	2	ug/L
95-47-6	o-Xylene	0.5	U	0.43	1	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	0.5	U	0.31	1	ug/L
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	50.7		70 - 120	101%	SPK: 50
1868-53-7	Dibromofluoromethane	50.6		85 - 115	101%	SPK: 50
2037-26-5	Toluene-d8	37.9	*	85 - 120	76%	SPK: 50
460-00-4	4-Bromofluorobenzene	36.6	*	75 - 120	73%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	725744	3.91			
540-36-3	1,4-Difluorobenzene	1177740	4.73			
3114-55-4	Chlorobenzene-d5	618480	9.68			
3855-82-1	1,4-Dichlorobenzene-d4	251188	13.38			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	10/25/11
Project:	CTO WE63	Date Received:	10/27/11
Client Sample ID:	FT-GW434-6165	SDG No.:	C4355
Lab Sample ID:	C4355-06	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VH044192.D	1		11/08/11	VH110711

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	2.5	U	0.55	5	ug/L
75-01-4	Vinyl Chloride	2.5	U	0.34	5	ug/L
75-69-4	Trichlorofluoromethane	2.5	U	0.35	5	ug/L
75-35-4	1,1-Dichloroethene	2.5	U	0.47	5	ug/L
67-64-1	Acetone	12	J	2.8	25	ug/L
75-09-2	Methylene Chloride	2.5	U	0.41	5	ug/L
156-60-5	trans-1,2-Dichloroethene	2.5	U	0.41	5	ug/L
75-34-3	1,1-Dichloroethane	2.5	U	0.36	5	ug/L
78-93-3	2-Butanone	12.5	U	1.3	25	ug/L
156-59-2	cis-1,2-Dichloroethene	2.5	U	0.35	5	ug/L
71-55-6	1,1,1-Trichloroethane	2.5	U	0.4	5	ug/L
71-43-2	Benzene	2.5	U	0.32	5	ug/L
107-06-2	1,2-Dichloroethane	2.5	U	0.48	5	ug/L
79-01-6	Trichloroethene	2.5	U	0.28	5	ug/L
108-88-3	Toluene	2.5	U	0.37	5	ug/L
79-00-5	1,1,2-Trichloroethane	2.5	U	0.38	5	ug/L
127-18-4	Tetrachloroethene	2.5	U	0.27	5	ug/L
100-41-4	Ethyl Benzene	2.5	U	0.53	5	ug/L
179601-23-1	m/p-Xylenes	5	U	0.95	10	ug/L
95-47-6	o-Xylene	2.5	U	0.43	5	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	2.5	U	0.31	5	ug/L
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	50.7		70 - 120	101%	SPK: 50
1868-53-7	Dibromofluoromethane	50.7		85 - 115	101%	SPK: 50
2037-26-5	Toluene-d8	54.5		85 - 120	109%	SPK: 50
460-00-4	4-Bromofluorobenzene	58.9		75 - 120	118%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	386242	4.93			
540-36-3	1,4-Difluorobenzene	651742	5.65			
3114-55-4	Chlorobenzene-d5	673074	9.79			
3855-82-1	1,4-Dichlorobenzene-d4	363899	12.53			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	10/25/11
Project:	CTO WE63	Date Received:	10/27/11
Client Sample ID:	FT-GW434-6165RE	SDG No.:	C4355
Lab Sample ID:	C4355-06RE	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG038689.D	1		11/08/11	VG110811

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	0.5	U	0.2	1	ug/L
75-01-4	Vinyl Chloride	0.5	U	0.34	1	ug/L
75-69-4	Trichlorofluoromethane	0.5	U	0.35	1	ug/L
75-35-4	1,1-Dichloroethene	0.5	U	0.47	1	ug/L
67-64-1	Acetone	2.5	U	0.5	5	ug/L
75-09-2	Methylene Chloride	0.5	U	0.41	1	ug/L
156-60-5	trans-1,2-Dichloroethene	0.5	U	0.41	1	ug/L
75-34-3	1,1-Dichloroethane	0.5	U	0.36	1	ug/L
78-93-3	2-Butanone	2.5	U	1.3	5	ug/L
156-59-2	cis-1,2-Dichloroethene	0.5	U	0.35	1	ug/L
71-55-6	1,1,1-Trichloroethane	0.5	U	0.4	1	ug/L
71-43-2	Benzene	0.5	U	0.32	1	ug/L
107-06-2	1,2-Dichloroethane	0.5	U	0.48	1	ug/L
79-01-6	Trichloroethene	0.5	U	0.28	1	ug/L
108-88-3	Toluene	0.5	U	0.37	1	ug/L
79-00-5	1,1,2-Trichloroethane	0.5	U	0.38	1	ug/L
127-18-4	Tetrachloroethene	0.5	U	0.27	1	ug/L
100-41-4	Ethyl Benzene	0.5	U	0.2	1	ug/L
179601-23-1	m/p-Xylenes	1	U	0.95	2	ug/L
95-47-6	o-Xylene	0.5	U	0.43	1	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	0.5	U	0.31	1	ug/L
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	52.8		70 - 120	106%	SPK: 50
1868-53-7	Dibromofluoromethane	51.2		85 - 115	103%	SPK: 50
2037-26-5	Toluene-d8	37	*	85 - 120	74%	SPK: 50
460-00-4	4-Bromofluorobenzene	36.2	*	75 - 120	72%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	732057	3.91			
540-36-3	1,4-Difluorobenzene	1209910	4.73			
3114-55-4	Chlorobenzene-d5	612389	9.68			
3855-82-1	1,4-Dichlorobenzene-d4	255021	13.39			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	10/25/11
Project:	CTO WE63	Date Received:	10/27/11
Client Sample ID:	FT-GW434-7175	SDG No.:	C4355
Lab Sample ID:	C4355-01	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VH044178.D	1		11/07/11	vh110711

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	2.5	U	0.55	5	ug/L
75-01-4	Vinyl Chloride	2.5	U	0.34	5	ug/L
75-69-4	Trichlorofluoromethane	2.5	U	0.35	5	ug/L
75-35-4	1,1-Dichloroethene	2.5	U	0.47	5	ug/L
67-64-1	Acetone	12.5	U	2.8	25	ug/L
75-09-2	Methylene Chloride	2.5	U	0.41	5	ug/L
156-60-5	trans-1,2-Dichloroethene	2.5	U	0.41	5	ug/L
75-34-3	1,1-Dichloroethane	2.5	U	0.36	5	ug/L
78-93-3	2-Butanone	12.5	U	1.3	25	ug/L
156-59-2	cis-1,2-Dichloroethene	2.5	U	0.35	5	ug/L
71-55-6	1,1,1-Trichloroethane	2.5	U	0.4	5	ug/L
71-43-2	Benzene	2.5	U	0.32	5	ug/L
107-06-2	1,2-Dichloroethane	2.5	U	0.48	5	ug/L
79-01-6	Trichloroethene	2.5	U	0.28	5	ug/L
108-88-3	Toluene	2.5	U	0.37	5	ug/L
79-00-5	1,1,2-Trichloroethane	2.5	U	0.38	5	ug/L
127-18-4	Tetrachloroethene	2.5	U	0.27	5	ug/L
100-41-4	Ethyl Benzene	2.5	U	0.53	5	ug/L
179601-23-1	m/p-Xylenes	5	U	0.95	10	ug/L
95-47-6	o-Xylene	2.5	U	0.43	5	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	2.5	U	0.31	5	ug/L
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	53.2		70 - 120	106%	SPK: 50
1868-53-7	Dibromofluoromethane	53.2		85 - 115	106%	SPK: 50
2037-26-5	Toluene-d8	58		85 - 120	116%	SPK: 50
460-00-4	4-Bromofluorobenzene	60.6	*	75 - 120	121%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	415432	4.92			
540-36-3	1,4-Difluorobenzene	656608	5.64			
3114-55-4	Chlorobenzene-d5	686449	9.78			
3855-82-1	1,4-Dichlorobenzene-d4	355620	12.53			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	10/25/11
Project:	CTO WE63	Date Received:	10/27/11
Client Sample ID:	FT-GW434-7175RE	SDG No.:	C4355
Lab Sample ID:	C4355-01RE	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG038684.D	1		11/08/11	VG110811

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	0.5	U	0.2	1	ug/L
75-01-4	Vinyl Chloride	0.5	U	0.34	1	ug/L
75-69-4	Trichlorofluoromethane	0.5	U	0.35	1	ug/L
75-35-4	1,1-Dichloroethene	0.5	U	0.47	1	ug/L
67-64-1	Acetone	2.5	U	0.5	5	ug/L
75-09-2	Methylene Chloride	0.5	U	0.41	1	ug/L
156-60-5	trans-1,2-Dichloroethene	0.5	U	0.41	1	ug/L
75-34-3	1,1-Dichloroethane	0.5	U	0.36	1	ug/L
78-93-3	2-Butanone	2.5	U	1.3	5	ug/L
156-59-2	cis-1,2-Dichloroethene	0.5	U	0.35	1	ug/L
71-55-6	1,1,1-Trichloroethane	0.5	U	0.4	1	ug/L
71-43-2	Benzene	0.5	U	0.32	1	ug/L
107-06-2	1,2-Dichloroethane	0.5	U	0.48	1	ug/L
79-01-6	Trichloroethene	0.5	U	0.28	1	ug/L
108-88-3	Toluene	0.5	U	0.37	1	ug/L
79-00-5	1,1,2-Trichloroethane	0.5	U	0.38	1	ug/L
127-18-4	Tetrachloroethene	0.5	U	0.27	1	ug/L
100-41-4	Ethyl Benzene	0.5	U	0.2	1	ug/L
179601-23-1	m/p-Xylenes	1	U	0.95	2	ug/L
95-47-6	o-Xylene	0.5	U	0.43	1	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	0.5	U	0.31	1	ug/L
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	51.9		70 - 120	104%	SPK: 50
1868-53-7	Dibromofluoromethane	51.2		85 - 115	102%	SPK: 50
2037-26-5	Toluene-d8	39.6	*	85 - 120	79%	SPK: 50
460-00-4	4-Bromofluorobenzene	37.8		75 - 120	76%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	756266	3.91			
540-36-3	1,4-Difluorobenzene	1252360	4.72			
3114-55-4	Chlorobenzene-d5	667036	9.69			
3855-82-1	1,4-Dichlorobenzene-d4	277323	13.38			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	10/26/11
Project:	CTO WE63	Date Received:	10/27/11
Client Sample ID:	FT-GW436-2630	SDG No.:	C4355
Lab Sample ID:	C4355-14	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VH044200.D	1		11/08/11	VH110711

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	2.5	U	0.55	5	ug/L
75-01-4	Vinyl Chloride	2.5	U	0.34	5	ug/L
75-69-4	Trichlorofluoromethane	2.5	U	0.35	5	ug/L
75-35-4	1,1-Dichloroethene	2.5	U	0.47	5	ug/L
67-64-1	Acetone	15	J	2.8	25	ug/L
75-09-2	Methylene Chloride	2.5	U	0.41	5	ug/L
156-60-5	trans-1,2-Dichloroethene	2.5	U	0.41	5	ug/L
75-34-3	1,1-Dichloroethane	2.5	U	0.36	5	ug/L
78-93-3	2-Butanone	12.5	U	1.3	25	ug/L
156-59-2	cis-1,2-Dichloroethene	2.5	U	0.35	5	ug/L
71-55-6	1,1,1-Trichloroethane	2.5	U	0.4	5	ug/L
71-43-2	Benzene	2.5	U	0.32	5	ug/L
107-06-2	1,2-Dichloroethane	2.5	U	0.48	5	ug/L
79-01-6	Trichloroethene	2.5	U	0.28	5	ug/L
108-88-3	Toluene	2.5	U	0.37	5	ug/L
79-00-5	1,1,2-Trichloroethane	2.5	U	0.38	5	ug/L
127-18-4	Tetrachloroethene	2.5	U	0.27	5	ug/L
100-41-4	Ethyl Benzene	2.5	U	0.53	5	ug/L
179601-23-1	m/p-Xylenes	5	U	0.95	10	ug/L
95-47-6	o-Xylene	2.5	U	0.43	5	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	2.5	U	0.31	5	ug/L
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	52		70 - 120	104%	SPK: 50
1868-53-7	Dibromofluoromethane	48.2		85 - 115	96%	SPK: 50
2037-26-5	Toluene-d8	49.6		85 - 120	99%	SPK: 50
460-00-4	4-Bromofluorobenzene	59.4		75 - 120	119%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	348935	4.93			
540-36-3	1,4-Difluorobenzene	612093	5.65			
3114-55-4	Chlorobenzene-d5	597168	9.79			
3855-82-1	1,4-Dichlorobenzene-d4	331410	12.53			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	10/26/11
Project:	CTO WE63	Date Received:	10/27/11
Client Sample ID:	FT-GW436-2630RE	SDG No.:	C4355
Lab Sample ID:	C4355-14RE	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG038697.D	1		11/08/11	VG110811

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	0.5	U	0.2	1	ug/L
75-01-4	Vinyl Chloride	0.5	U	0.34	1	ug/L
75-69-4	Trichlorofluoromethane	0.5	U	0.35	1	ug/L
75-35-4	1,1-Dichloroethene	0.5	U	0.47	1	ug/L
67-64-1	Acetone	2.5	U	0.5	5	ug/L
75-09-2	Methylene Chloride	0.5	U	0.41	1	ug/L
156-60-5	trans-1,2-Dichloroethene	0.5	U	0.41	1	ug/L
75-34-3	1,1-Dichloroethane	0.5	U	0.36	1	ug/L
78-93-3	2-Butanone	2.5	U	1.3	5	ug/L
156-59-2	cis-1,2-Dichloroethene	0.5	U	0.35	1	ug/L
71-55-6	1,1,1-Trichloroethane	0.5	U	0.4	1	ug/L
71-43-2	Benzene	0.5	U	0.32	1	ug/L
107-06-2	1,2-Dichloroethane	0.5	U	0.48	1	ug/L
79-01-6	Trichloroethene	0.5	U	0.28	1	ug/L
108-88-3	Toluene	0.5	U	0.37	1	ug/L
79-00-5	1,1,2-Trichloroethane	0.5	U	0.38	1	ug/L
127-18-4	Tetrachloroethene	0.5	U	0.27	1	ug/L
100-41-4	Ethyl Benzene	0.5	U	0.2	1	ug/L
179601-23-1	m/p-Xylenes	1	U	0.95	2	ug/L
95-47-6	o-Xylene	0.5	U	0.43	1	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	0.5	U	0.31	1	ug/L
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	55.5		70 - 120	111%	SPK: 50
1868-53-7	Dibromofluoromethane	52.5		85 - 115	105%	SPK: 50
2037-26-5	Toluene-d8	37.5	*	85 - 120	75%	SPK: 50
460-00-4	4-Bromofluorobenzene	35.6	*	75 - 120	71%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	670341	3.91			
540-36-3	1,4-Difluorobenzene	1162280	4.73			
3114-55-4	Chlorobenzene-d5	606180	9.69			
3855-82-1	1,4-Dichlorobenzene-d4	244340	13.39			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	10/26/11
Project:	CTO WE63	Date Received:	10/27/11
Client Sample ID:	FT-GW436-3135	SDG No.:	C4355
Lab Sample ID:	C4355-11	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VH044197.D	1		11/08/11	VH110711

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	2.5	U	0.55	5	ug/L
75-01-4	Vinyl Chloride	2.5	U	0.34	5	ug/L
75-69-4	Trichlorofluoromethane	2.5	U	0.35	5	ug/L
75-35-4	1,1-Dichloroethene	2.5	U	0.47	5	ug/L
67-64-1	Acetone	12.5	U	2.8	25	ug/L
75-09-2	Methylene Chloride	2.5	U	0.41	5	ug/L
156-60-5	trans-1,2-Dichloroethene	2.5	U	0.41	5	ug/L
75-34-3	1,1-Dichloroethane	2.5	U	0.36	5	ug/L
78-93-3	2-Butanone	12.5	U	1.3	25	ug/L
156-59-2	cis-1,2-Dichloroethene	2.5	U	0.35	5	ug/L
71-55-6	1,1,1-Trichloroethane	2.5	U	0.4	5	ug/L
71-43-2	Benzene	2.5	U	0.32	5	ug/L
107-06-2	1,2-Dichloroethane	2.5	U	0.48	5	ug/L
79-01-6	Trichloroethene	2.5	U	0.28	5	ug/L
108-88-3	Toluene	2.5	U	0.37	5	ug/L
79-00-5	1,1,2-Trichloroethane	2.5	U	0.38	5	ug/L
127-18-4	Tetrachloroethene	2.5	U	0.27	5	ug/L
100-41-4	Ethyl Benzene	2.5	U	0.53	5	ug/L
179601-23-1	m/p-Xylenes	5	U	0.95	10	ug/L
95-47-6	o-Xylene	2.5	U	0.43	5	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	2.5	U	0.31	5	ug/L
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	55.2		70 - 120	110%	SPK: 50
1868-53-7	Dibromofluoromethane	50.2		85 - 115	100%	SPK: 50
2037-26-5	Toluene-d8	52.2		85 - 120	104%	SPK: 50
460-00-4	4-Bromofluorobenzene	60.9	*	75 - 120	122%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	369416	4.93			
540-36-3	1,4-Difluorobenzene	627648	5.65			
3114-55-4	Chlorobenzene-d5	657134	9.79			
3855-82-1	1,4-Dichlorobenzene-d4	343961	12.53			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	10/26/11
Project:	CTO WE63	Date Received:	10/27/11
Client Sample ID:	FT-GW436-3135RE	SDG No.:	C4355
Lab Sample ID:	C4355-11RE	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG038694.D	1		11/08/11	VG110811

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	0.5	U	0.2	1	ug/L
75-01-4	Vinyl Chloride	0.5	U	0.34	1	ug/L
75-69-4	Trichlorofluoromethane	0.5	U	0.35	1	ug/L
75-35-4	1,1-Dichloroethene	0.5	U	0.47	1	ug/L
67-64-1	Acetone	2.5	U	0.5	5	ug/L
75-09-2	Methylene Chloride	0.5	U	0.41	1	ug/L
156-60-5	trans-1,2-Dichloroethene	0.5	U	0.41	1	ug/L
75-34-3	1,1-Dichloroethane	0.5	U	0.36	1	ug/L
78-93-3	2-Butanone	2.5	U	1.3	5	ug/L
156-59-2	cis-1,2-Dichloroethene	0.5	U	0.35	1	ug/L
71-55-6	1,1,1-Trichloroethane	0.5	U	0.4	1	ug/L
71-43-2	Benzene	0.5	U	0.32	1	ug/L
107-06-2	1,2-Dichloroethane	0.5	U	0.48	1	ug/L
79-01-6	Trichloroethene	0.5	U	0.28	1	ug/L
108-88-3	Toluene	0.5	U	0.37	1	ug/L
79-00-5	1,1,2-Trichloroethane	0.5	U	0.38	1	ug/L
127-18-4	Tetrachloroethene	0.5	U	0.27	1	ug/L
100-41-4	Ethyl Benzene	0.5	U	0.2	1	ug/L
179601-23-1	m/p-Xylenes	1	U	0.95	2	ug/L
95-47-6	o-Xylene	0.5	U	0.43	1	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	0.5	U	0.31	1	ug/L
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	54.4		70 - 120	109%	SPK: 50
1868-53-7	Dibromofluoromethane	52.9		85 - 115	106%	SPK: 50
2037-26-5	Toluene-d8	38.8	*	85 - 120	78%	SPK: 50
460-00-4	4-Bromofluorobenzene	37	*	75 - 120	74%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	705597	3.91			
540-36-3	1,4-Difluorobenzene	1140900	4.72			
3114-55-4	Chlorobenzene-d5	600116	9.69			
3855-82-1	1,4-Dichlorobenzene-d4	251497	13.38			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	10/26/11
Project:	CTO WE63	Date Received:	10/27/11
Client Sample ID:	FT-GW436-4145	SDG No.:	C4355
Lab Sample ID:	C4355-13	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VH044199.D	1		11/08/11	VH110711

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	2.5	U	0.55	5	ug/L
75-01-4	Vinyl Chloride	2.5	U	0.34	5	ug/L
75-69-4	Trichlorofluoromethane	2.5	U	0.35	5	ug/L
75-35-4	1,1-Dichloroethene	2.5	U	0.47	5	ug/L
67-64-1	Acetone	12.5	U	2.8	25	ug/L
75-09-2	Methylene Chloride	2.5	U	0.41	5	ug/L
156-60-5	trans-1,2-Dichloroethene	2.5	U	0.41	5	ug/L
75-34-3	1,1-Dichloroethane	2.5	U	0.36	5	ug/L
78-93-3	2-Butanone	12.5	U	1.3	25	ug/L
156-59-2	cis-1,2-Dichloroethene	2.5	U	0.35	5	ug/L
71-55-6	1,1,1-Trichloroethane	2.5	U	0.4	5	ug/L
71-43-2	Benzene	2.5	U	0.32	5	ug/L
107-06-2	1,2-Dichloroethane	2.5	U	0.48	5	ug/L
79-01-6	Trichloroethene	2.5	U	0.28	5	ug/L
108-88-3	Toluene	2.5	U	0.37	5	ug/L
79-00-5	1,1,2-Trichloroethane	2.5	U	0.38	5	ug/L
127-18-4	Tetrachloroethene	2.5	U	0.27	5	ug/L
100-41-4	Ethyl Benzene	2.5	U	0.53	5	ug/L
179601-23-1	m/p-Xylenes	5	U	0.95	10	ug/L
95-47-6	o-Xylene	2.5	U	0.43	5	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	2.5	U	0.31	5	ug/L
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	55.2		70 - 120	110%	SPK: 50
1868-53-7	Dibromofluoromethane	52.9		85 - 115	106%	SPK: 50
2037-26-5	Toluene-d8	57		85 - 120	114%	SPK: 50
460-00-4	4-Bromofluorobenzene	61.2	*	75 - 120	122%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	360523	4.92			
540-36-3	1,4-Difluorobenzene	593859	5.64			
3114-55-4	Chlorobenzene-d5	648219	9.78			
3855-82-1	1,4-Dichlorobenzene-d4	333361	12.53			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	10/26/11
Project:	CTO WE63	Date Received:	10/27/11
Client Sample ID:	FT-GW436-4145RE	SDG No.:	C4355
Lab Sample ID:	C4355-13RE	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG038696.D	1		11/08/11	VG110811

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	0.5	U	0.2	1	ug/L
75-01-4	Vinyl Chloride	0.5	U	0.34	1	ug/L
75-69-4	Trichlorofluoromethane	0.5	U	0.35	1	ug/L
75-35-4	1,1-Dichloroethene	0.5	U	0.47	1	ug/L
67-64-1	Acetone	2.5	U	0.5	5	ug/L
75-09-2	Methylene Chloride	0.5	U	0.41	1	ug/L
156-60-5	trans-1,2-Dichloroethene	0.5	U	0.41	1	ug/L
75-34-3	1,1-Dichloroethane	0.5	U	0.36	1	ug/L
78-93-3	2-Butanone	2.5	U	1.3	5	ug/L
156-59-2	cis-1,2-Dichloroethene	0.5	U	0.35	1	ug/L
71-55-6	1,1,1-Trichloroethane	0.5	U	0.4	1	ug/L
71-43-2	Benzene	0.5	U	0.32	1	ug/L
107-06-2	1,2-Dichloroethane	0.5	U	0.48	1	ug/L
79-01-6	Trichloroethene	0.5	U	0.28	1	ug/L
108-88-3	Toluene	0.5	U	0.37	1	ug/L
79-00-5	1,1,2-Trichloroethane	0.5	U	0.38	1	ug/L
127-18-4	Tetrachloroethene	0.5	U	0.27	1	ug/L
100-41-4	Ethyl Benzene	0.5	U	0.2	1	ug/L
179601-23-1	m/p-Xylenes	1	U	0.95	2	ug/L
95-47-6	o-Xylene	0.5	U	0.43	1	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	0.5	U	0.31	1	ug/L
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	56.3		70 - 120	113%	SPK: 50
1868-53-7	Dibromofluoromethane	53.8		85 - 115	108%	SPK: 50
2037-26-5	Toluene-d8	39	*	85 - 120	78%	SPK: 50
460-00-4	4-Bromofluorobenzene	37.4		75 - 120	75%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	681972	3.91			
540-36-3	1,4-Difluorobenzene	1141200	4.72			
3114-55-4	Chlorobenzene-d5	599189	9.68			
3855-82-1	1,4-Dichlorobenzene-d4	247298	13.38			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	10/26/11
Project:	CTO WE63	Date Received:	10/27/11
Client Sample ID:	FT-GW436-5155	SDG No.:	C4355
Lab Sample ID:	C4355-10	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VH044196.D	1		11/08/11	VH110711

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	2.5	U	0.55	5	ug/L
75-01-4	Vinyl Chloride	2.5	U	0.34	5	ug/L
75-69-4	Trichlorofluoromethane	2.5	U	0.35	5	ug/L
75-35-4	1,1-Dichloroethene	2.5	U	0.47	5	ug/L
67-64-1	Acetone	12.5	U	2.8	25	ug/L
75-09-2	Methylene Chloride	2.5	U	0.41	5	ug/L
156-60-5	trans-1,2-Dichloroethene	2.5	U	0.41	5	ug/L
75-34-3	1,1-Dichloroethane	2.5	U	0.36	5	ug/L
78-93-3	2-Butanone	12.5	U	1.3	25	ug/L
156-59-2	cis-1,2-Dichloroethene	2.5	U	0.35	5	ug/L
71-55-6	1,1,1-Trichloroethane	2.5	U	0.4	5	ug/L
71-43-2	Benzene	2.5	U	0.32	5	ug/L
107-06-2	1,2-Dichloroethane	2.5	U	0.48	5	ug/L
79-01-6	Trichloroethene	2.5	U	0.28	5	ug/L
108-88-3	Toluene	2.5	U	0.37	5	ug/L
79-00-5	1,1,2-Trichloroethane	2.5	U	0.38	5	ug/L
127-18-4	Tetrachloroethene	2.5	U	0.27	5	ug/L
100-41-4	Ethyl Benzene	2.5	U	0.53	5	ug/L
179601-23-1	m/p-Xylenes	5	U	0.95	10	ug/L
95-47-6	o-Xylene	2.5	U	0.43	5	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	2.5	U	0.31	5	ug/L
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	57.1		70 - 120	114%	SPK: 50
1868-53-7	Dibromofluoromethane	51.1		85 - 115	102%	SPK: 50
2037-26-5	Toluene-d8	54.5		85 - 120	109%	SPK: 50
460-00-4	4-Bromofluorobenzene	59.1		75 - 120	118%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	351133	4.92			
540-36-3	1,4-Difluorobenzene	617557	5.65			
3114-55-4	Chlorobenzene-d5	643851	9.79			
3855-82-1	1,4-Dichlorobenzene-d4	347927	12.53			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	10/26/11
Project:	CTO WE63	Date Received:	10/27/11
Client Sample ID:	FT-GW436-5155RE	SDG No.:	C4355
Lab Sample ID:	C4355-10RE	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG038693.D	1		11/08/11	VG110811

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	0.5	U	0.2	1	ug/L
75-01-4	Vinyl Chloride	0.5	U	0.34	1	ug/L
75-69-4	Trichlorofluoromethane	0.5	U	0.35	1	ug/L
75-35-4	1,1-Dichloroethene	0.5	U	0.47	1	ug/L
67-64-1	Acetone	2.5	U	0.5	5	ug/L
75-09-2	Methylene Chloride	0.5	U	0.41	1	ug/L
156-60-5	trans-1,2-Dichloroethene	0.5	U	0.41	1	ug/L
75-34-3	1,1-Dichloroethane	0.5	U	0.36	1	ug/L
78-93-3	2-Butanone	2.5	U	1.3	5	ug/L
156-59-2	cis-1,2-Dichloroethene	0.5	U	0.35	1	ug/L
71-55-6	1,1,1-Trichloroethane	0.5	U	0.4	1	ug/L
71-43-2	Benzene	0.5	U	0.32	1	ug/L
107-06-2	1,2-Dichloroethane	0.5	U	0.48	1	ug/L
79-01-6	Trichloroethene	0.5	U	0.28	1	ug/L
108-88-3	Toluene	0.5	U	0.37	1	ug/L
79-00-5	1,1,2-Trichloroethane	0.5	U	0.38	1	ug/L
127-18-4	Tetrachloroethene	0.5	U	0.27	1	ug/L
100-41-4	Ethyl Benzene	0.5	U	0.2	1	ug/L
179601-23-1	m/p-Xylenes	1	U	0.95	2	ug/L
95-47-6	o-Xylene	0.5	U	0.43	1	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	0.5	U	0.31	1	ug/L
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	53.8		70 - 120	108%	SPK: 50
1868-53-7	Dibromofluoromethane	52.8		85 - 115	106%	SPK: 50
2037-26-5	Toluene-d8	40.6	*	85 - 120	81%	SPK: 50
460-00-4	4-Bromofluorobenzene	37	*	75 - 120	74%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	703335	3.91			
540-36-3	1,4-Difluorobenzene	1144280	4.72			
3114-55-4	Chlorobenzene-d5	591284	9.69			
3855-82-1	1,4-Dichlorobenzene-d4	251549	13.39			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	10/26/11
Project:	CTO WE63	Date Received:	10/27/11
Client Sample ID:	FT-GW436-6165	SDG No.:	C4355
Lab Sample ID:	C4355-12	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VH044198.D	1		11/08/11	VH110711

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	2.5	U	0.55	5	ug/L
75-01-4	Vinyl Chloride	2.5	U	0.34	5	ug/L
75-69-4	Trichlorofluoromethane	2.5	U	0.35	5	ug/L
75-35-4	1,1-Dichloroethene	2.5	U	0.47	5	ug/L
67-64-1	Acetone	12.5	U	2.8	25	ug/L
75-09-2	Methylene Chloride	2.5	U	0.41	5	ug/L
156-60-5	trans-1,2-Dichloroethene	2.5	U	0.41	5	ug/L
75-34-3	1,1-Dichloroethane	2.5	U	0.36	5	ug/L
78-93-3	2-Butanone	12.5	U	1.3	25	ug/L
156-59-2	cis-1,2-Dichloroethene	2.5	U	0.35	5	ug/L
71-55-6	1,1,1-Trichloroethane	2.5	U	0.4	5	ug/L
71-43-2	Benzene	2.5	U	0.32	5	ug/L
107-06-2	1,2-Dichloroethane	2.5	U	0.48	5	ug/L
79-01-6	Trichloroethene	2.5	U	0.28	5	ug/L
108-88-3	Toluene	2.5	U	0.37	5	ug/L
79-00-5	1,1,2-Trichloroethane	2.5	U	0.38	5	ug/L
127-18-4	Tetrachloroethene	2.5	U	0.27	5	ug/L
100-41-4	Ethyl Benzene	2.5	U	0.53	5	ug/L
179601-23-1	m/p-Xylenes	5	U	0.95	10	ug/L
95-47-6	o-Xylene	2.5	U	0.43	5	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	2.5	U	0.31	5	ug/L
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	56.4		70 - 120	113%	SPK: 50
1868-53-7	Dibromofluoromethane	50		85 - 115	100%	SPK: 50
2037-26-5	Toluene-d8	55		85 - 120	110%	SPK: 50
460-00-4	4-Bromofluorobenzene	60.5	*	75 - 120	121%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	356631	4.93			
540-36-3	1,4-Difluorobenzene	615111	5.65			
3114-55-4	Chlorobenzene-d5	635302	9.79			
3855-82-1	1,4-Dichlorobenzene-d4	333579	12.52			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	10/26/11
Project:	CTO WE63	Date Received:	10/27/11
Client Sample ID:	FT-GW436-6165RE	SDG No.:	C4355
Lab Sample ID:	C4355-12RE	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG038695.D	1		11/08/11	VG110811

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	0.5	U	0.2	1	ug/L
75-01-4	Vinyl Chloride	0.5	U	0.34	1	ug/L
75-69-4	Trichlorofluoromethane	0.5	U	0.35	1	ug/L
75-35-4	1,1-Dichloroethene	0.5	U	0.47	1	ug/L
67-64-1	Acetone	2.5	U	0.5	5	ug/L
75-09-2	Methylene Chloride	0.5	U	0.41	1	ug/L
156-60-5	trans-1,2-Dichloroethene	0.5	U	0.41	1	ug/L
75-34-3	1,1-Dichloroethane	0.5	U	0.36	1	ug/L
78-93-3	2-Butanone	2.5	U	1.3	5	ug/L
156-59-2	cis-1,2-Dichloroethene	0.5	U	0.35	1	ug/L
71-55-6	1,1,1-Trichloroethane	0.5	U	0.4	1	ug/L
71-43-2	Benzene	0.5	U	0.32	1	ug/L
107-06-2	1,2-Dichloroethane	0.5	U	0.48	1	ug/L
79-01-6	Trichloroethene	0.5	U	0.28	1	ug/L
108-88-3	Toluene	0.5	U	0.37	1	ug/L
79-00-5	1,1,2-Trichloroethane	0.5	U	0.38	1	ug/L
127-18-4	Tetrachloroethene	0.5	U	0.27	1	ug/L
100-41-4	Ethyl Benzene	0.5	U	0.2	1	ug/L
179601-23-1	m/p-Xylenes	1	U	0.95	2	ug/L
95-47-6	o-Xylene	0.5	U	0.43	1	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	0.5	U	0.31	1	ug/L
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	53.8		70 - 120	108%	SPK: 50
1868-53-7	Dibromofluoromethane	52.2		85 - 115	104%	SPK: 50
2037-26-5	Toluene-d8	39.4	*	85 - 120	79%	SPK: 50
460-00-4	4-Bromofluorobenzene	37.1	*	75 - 120	74%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	696821	3.91			
540-36-3	1,4-Difluorobenzene	1139850	4.72			
3114-55-4	Chlorobenzene-d5	589738	9.69			
3855-82-1	1,4-Dichlorobenzene-d4	237690	13.39			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	10/25/11
Project:	CTO WE63	Date Received:	10/27/11
Client Sample ID:	FT-GW436-7175	SDG No.:	C4355
Lab Sample ID:	C4355-09	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VH044195.D	1		11/08/11	VH110711

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	2.5	U	0.55	5	ug/L
75-01-4	Vinyl Chloride	2.5	U	0.34	5	ug/L
75-69-4	Trichlorofluoromethane	2.5	U	0.35	5	ug/L
75-35-4	1,1-Dichloroethene	2.5	U	0.47	5	ug/L
67-64-1	Acetone	12	J	2.8	25	ug/L
75-09-2	Methylene Chloride	2.5	U	0.41	5	ug/L
156-60-5	trans-1,2-Dichloroethene	2.5	U	0.41	5	ug/L
75-34-3	1,1-Dichloroethane	2.5	U	0.36	5	ug/L
78-93-3	2-Butanone	12.5	U	1.3	25	ug/L
156-59-2	cis-1,2-Dichloroethene	2.5	U	0.35	5	ug/L
71-55-6	1,1,1-Trichloroethane	2.5	U	0.4	5	ug/L
71-43-2	Benzene	2.5	U	0.32	5	ug/L
107-06-2	1,2-Dichloroethane	2.5	U	0.48	5	ug/L
79-01-6	Trichloroethene	2.5	U	0.28	5	ug/L
108-88-3	Toluene	2.5	U	0.37	5	ug/L
79-00-5	1,1,2-Trichloroethane	2.5	U	0.38	5	ug/L
127-18-4	Tetrachloroethene	2.5	U	0.27	5	ug/L
100-41-4	Ethyl Benzene	2.5	U	0.53	5	ug/L
179601-23-1	m/p-Xylenes	5	U	0.95	10	ug/L
95-47-6	o-Xylene	2.5	U	0.43	5	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	2.5	U	0.31	5	ug/L
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	53.9		70 - 120	108%	SPK: 50
1868-53-7	Dibromofluoromethane	50.6		85 - 115	101%	SPK: 50
2037-26-5	Toluene-d8	53		85 - 120	106%	SPK: 50
460-00-4	4-Bromofluorobenzene	59.4		75 - 120	119%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	392714	4.92			
540-36-3	1,4-Difluorobenzene	664843	5.65			
3114-55-4	Chlorobenzene-d5	689560	9.78			
3855-82-1	1,4-Dichlorobenzene-d4	354228	12.53			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	10/25/11
Project:	CTO WE63	Date Received:	10/27/11
Client Sample ID:	FT-GW436-7175RE	SDG No.:	C4355
Lab Sample ID:	C4355-09RE	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG038692.D	1		11/08/11	VG110811

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	0.5	U	0.2	1	ug/L
75-01-4	Vinyl Chloride	0.5	U	0.34	1	ug/L
75-69-4	Trichlorofluoromethane	0.5	U	0.35	1	ug/L
75-35-4	1,1-Dichloroethene	0.5	U	0.47	1	ug/L
67-64-1	Acetone	2.5	U	0.5	5	ug/L
75-09-2	Methylene Chloride	0.5	U	0.41	1	ug/L
156-60-5	trans-1,2-Dichloroethene	0.5	U	0.41	1	ug/L
75-34-3	1,1-Dichloroethane	0.5	U	0.36	1	ug/L
78-93-3	2-Butanone	2.5	U	1.3	5	ug/L
156-59-2	cis-1,2-Dichloroethene	0.5	U	0.35	1	ug/L
71-55-6	1,1,1-Trichloroethane	0.5	U	0.4	1	ug/L
71-43-2	Benzene	0.5	U	0.32	1	ug/L
107-06-2	1,2-Dichloroethane	0.5	U	0.48	1	ug/L
79-01-6	Trichloroethene	0.5	U	0.28	1	ug/L
108-88-3	Toluene	0.5	U	0.37	1	ug/L
79-00-5	1,1,2-Trichloroethane	0.5	U	0.38	1	ug/L
127-18-4	Tetrachloroethene	0.5	U	0.27	1	ug/L
100-41-4	Ethyl Benzene	0.5	U	0.2	1	ug/L
179601-23-1	m/p-Xylenes	1	U	0.95	2	ug/L
95-47-6	o-Xylene	0.5	U	0.43	1	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	0.5	U	0.31	1	ug/L
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	53.2		70 - 120	106%	SPK: 50
1868-53-7	Dibromofluoromethane	51.3		85 - 115	103%	SPK: 50
2037-26-5	Toluene-d8	37.8	*	85 - 120	76%	SPK: 50
460-00-4	4-Bromofluorobenzene	36.7	*	75 - 120	73%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	699826	3.91			
540-36-3	1,4-Difluorobenzene	1171040	4.72			
3114-55-4	Chlorobenzene-d5	594604	9.69			
3855-82-1	1,4-Dichlorobenzene-d4	243628	13.39			

CHEMTECH

Hit Summary Sheet
SW-846

SDG No.: C4355

Client: Tetra Tech NUS, Inc.

Sample ID	Client ID		Parameter	Concentration	C	RDL	MDL	Units
Client ID:	**FT-DUP06-20111025**							
C4355-08	FT-DUP06-20111025	WATER	Acetone	14.00	J	25	2.8	ug/L
			Total Voc :		**14.00**			
			Total Concentration:		**14.00**			
Client ID:	**FT-GW434-3135**							
C4355-03	FT-GW434-3135	WATER	Acetone	13.00	J	25	2.8	ug/L
C4355-03	FT-GW434-3135	WATER	1,1-Dichloroethane	4.50	J	5.0	0.36	ug/L
C4355-03	FT-GW434-3135	WATER	Trichloroethene	49.00		5.0	0.28	ug/L
			Total Voc :		**66.50**			
			Total Concentration:		**66.50**			
Client ID:	**FT-GW434-3135RE**							
C4355-03RE	FT-GW434-3135RE	WATER	1,1-Dichloroethane	4.20		1.0	0.36	ug/L
C4355-03RE	FT-GW434-3135RE	WATER	Trichloroethene	42.00		1.0	0.28	ug/L
			Total Voc :		**46.20**			
			Total Concentration:		**46.20**			
Client ID:	**FT-GW434-4145**							
C4355-05	FT-GW434-4145	WATER	Acetone	14.00	J	25	2.8	ug/L
			Total Voc :		**14.00**			
			Total Concentration:		**14.00**			
Client ID:	**FT-GW434-5155**							
C4355-04	FT-GW434-5155	WATER	Acetone	16.00	J	25	2.8	ug/L
			Total Voc :		**16.00**			
			Total Concentration:		**16.00**			
Client ID:	**FT-GW434-6165**							
C4355-06	FT-GW434-6165	WATER	Acetone	12.00	J	25	2.8	ug/L
			Total Voc :		**12.00**			
			Total Concentration:		**12.00**			
Client ID:	**FT-GW436-2630**							
C4355-14	FT-GW436-2630	WATER	Acetone	15.00	J	25	2.8	ug/L
			Total Voc :		**15.00**			
			Total Concentration:		**15.00**			
Client ID:	**FT-GW436-7175**							
C4355-09	FT-GW436-7175	WATER	Acetone	12.00	J	25	2.8	ug/L
			Total Voc :		**12.00**			
			Total Concentration:		**12.00**			

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ANALYTICAL RESULTS SUMMARY

PROJECT NAME : CTO WE08

TETRA TECH NUS, INC.
661 Anderson Drive

Pittsburgh , Pennsylvania - 15220-2745
Phone No: 4129218361

ORDER ID : C4998
ATTENTION : David Brayack

ACCREDITED IN ACCORDANCE WITH nelac

DoD ELAP

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Cover Page

Order ID : C4998

Project ID : CTO WE08

Client : Tetra Tech NUS, Inc.

Lab Sample Number	Client Sample Number
C4998-01	FT-TB01-20111213
C4998-02	FT-GW439-2125
C4998-03	FT-GW439-3135
C4998-04	FT-GW439-4145
C4998-05	FT-GW439-5155
C4998-06	FT-FB01-20111213
C4998-07	FT-RB01-20111213
C4998-08	FT-GW438-3135
C4998-09	C4998-08MS
C4998-10	C4998-08MSD
C4998-11	FT-GW438-2125
C4998-12	FT-GW438-4145
C4998-13	FT-GW438-5155
C4998-14	FT-GW437-2125
C4998-15	FT-GW437-3135
C4998-16	FT-GW437-4145
C4998-17	FT-GW437-5155
C4998-18	FT-DUP01-20111213
C4998-19	FT-DUP02-20111214
C4998-20	FT-GW440-2125
C4998-21	FT-GW440-3135
C4998-22	FT-GW440-4145
C4998-23	FT-GW440-5155

I certify that the data package is in compliance with the terms and conditions of the contract,both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hard copy data package has been authorized by the laboratory manager or his designee, as verified by the following signature.

Signature : _____

CHEMTECH

CASE NARRATIVE

Tetra Tech NUS, Inc.
Project Name: CTO WE08
Project # N/A
Chemtech Project # C4998
Test Name: VOCMS Group1

A. Number of Samples and Date of Receipt:
23 Water samples were received on 12/15/2011.

B. Parameters
According to the Chain of Custody document, the following analyses were requested: VOCMS Group1. This data package contains results for VOCMS Group1.

C. Analytical Techniques:
The analysis performed on instrument MSVOA_G were done using GC column RTX-VMS which is 20 meters, 0.18 mm id, 1.0 um df, Restek Cat. #49914. The Trap was supplied by OI Analytical, OI #10 Trap , OI Eclipse 4660 Concentrator.The analysis of VOCMS Group1 was based on method 8260-Low.

D. QA/ QC Samples:
The Holding Times were met for all analysis.
The Surrogate recoveries met the acceptable criteria except for BSG1216W1 [4-Bromofluorobenzene - 122%], FT-GW439-5155 [Toluene-d8 - 80%], FT-GW439-5155RE [Toluene-d8 - 82%], FT-RB01-20111213 [Toluene-d8 - 69%], FT-RB01-20111213RE [Toluene-d8 - 73%], FT-GW438-5155 [Toluene-d8 - 81%], FT-GW438-5155RE [Toluene-d8 - 80%], FT-GW440-2125 [Toluene-d8 - 79%], FT-GW440-2125RE [Toluene-d8 - 83%], FT-GW440-4145 [Toluene-d8 - 82%] and FT-GW440-4145RE [Toluene-d8 - 84%]. The Blank spike (BSG1216W1) [4-Bromofluorobenzene - 122%] met the in house limit but did not meet DOD limits.
The Internal Standards Areas met the acceptable requirements.
The Retention Times were acceptable for all samples.
The MS {C4998-09MS} with File ID: VG039614.D recoveries met the requirements for all compounds except for 1,4-Dioxane[150%], 2-Chloroethyl vinyl ether[0%] and Acetone[148%] .
The MSD {C4998-10MSD} with File ID: VG039615.D recoveries met the acceptable requirements except for 1,4-Dioxane[150%], 2-Chloroethyl vinyl ether[0%], Acetone[148%] and Chloromethane[126%] .
The RPD for {C4998-10MSD} with File ID: VG039615.D recoveries met criteria except for Carbon disulfide [36%] .
The Blank Spike for {BSG1215W3} with File ID: VG039612.D met requirements for all samples except for 1,4-Dioxane[145%] .
The Blank Spike for {BSG1216W1} with File ID: VG039633.D met requirements for all samples except for Bromochloromethane[170%] .

The Blank analysis did not indicate the presence of lab contamination.
The Initial Calibration met the requirements.
The Continuous Calibration File ID VG039609.D met the requirements except for Bromomethane,Chloroethane,2-Butanone,Styrene,Acetone,Methyl Acetate, 1,4-Dioxane and 1,2-Dichloroethane-d4 .
The Continuous Calibration File ID VG039631.D met the requirements except for Bromomethane, Chloroethane, Carbon Disulfide,Methyl Acetate,2-Butanone,1,4-Dioxane and Acetone .
The Continuous Calibration File ID VG039682.D met the requirements except for Chloromethane,Vinyl Chloride,Bromomethane,Chloroethane,Carbon Disulfide,1,1-Dichloroethane,cis-1,2-Dichloroethene,Bromochloromethane,Cyclohexane,1,4-Dioxane,4-Bromofluorobenzene,Acetone and Methylene Chloride .
The Tuning criteria met requirements.

E. Additional Comments:
Please use %D calculated based on Avg RF and CCRF for all compounds using Average Response Factor when the %RSD value for a compound is <15% for the Initial Calibration curve and use %D calculated based on Amount added and Calculated amount for all compounds using Linear Regression when the %RSD value for a compound is > 15% for the Initial Calibration curve for SW-846 analysis.

F. Manual Integration Comments:
Please refer to the Manual integration Report included with the Run Logs for information on the manual integrations performed.

I certify that the data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. The laboratory manager or his designee, as verified by the following signature has authorized release of the data contained in this hard copy data package.

Signature_____

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/14/11
Project:	CTO WE08	Date Received:	12/15/11
Client Sample ID:	FT-GW437-2125	SDG No.:	C4998
Lab Sample ID:	C4998-14	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG039627.D	1		12/16/11	VG121511

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	0.5	U	0.2	1	ug/L
74-87-3	Chloromethane	0.57	J	0.2	1	ug/L
75-01-4	Vinyl Chloride	0.5	U	0.34	1	ug/L
74-83-9	Bromomethane	0.5	U	0.2	1	ug/L
75-00-3	Chloroethane	0.5	U	0.2	1	ug/L
75-69-4	Trichlorofluoromethane	0.5	U	0.35	1	ug/L
76-13-1	1,1,2-Trichlorotrifluoroethane	0.5	U	0.45	1	ug/L
75-35-4	1,1-Dichloroethene	0.5	U	0.47	1	ug/L
67-64-1	Acetone	2.5	U	0.5	5	ug/L
75-15-0	Carbon Disulfide	0.5	U	0.2	1	ug/L
1634-04-4	Methyl tert-butyl Ether	0.5	U	0.35	1	ug/L
79-20-9	Methyl Acetate	0.5	U	0.2	1	ug/L
75-09-2	Methylene Chloride	0.5	U	0.41	1	ug/L
156-60-5	trans-1,2-Dichloroethene	0.5	U	0.41	1	ug/L
75-34-3	1,1-Dichloroethane	0.5	U	0.36	1	ug/L
110-82-7	Cyclohexane	0.5	U	0.2	1	ug/L
78-93-3	2-Butanone	2.5	U	1.3	5	ug/L
56-23-5	Carbon Tetrachloride	0.5	U	0.2	1	ug/L
156-59-2	cis-1,2-Dichloroethene	0.5	U	0.35	1	ug/L
74-97-5	Bromochloromethane	0.5	U	0.2	1	ug/L
67-66-3	Chloroform	0.5	U	0.34	1	ug/L
71-55-6	1,1,1-Trichloroethane	0.5	U	0.4	1	ug/L
108-87-2	Methylcyclohexane	0.5	U	0.2	1	ug/L
71-43-2	Benzene	0.5	U	0.32	1	ug/L
107-06-2	1,2-Dichloroethane	0.5	U	0.48	1	ug/L
79-01-6	Trichloroethene	1.3		0.28	1	ug/L
78-87-5	1,2-Dichloropropane	0.5	U	0.46	1	ug/L
75-27-4	Bromodichloromethane	0.5	U	0.36	1	ug/L
108-10-1	4-Methyl-2-Pentanone	2.5	U	2.1	5	ug/L
108-88-3	Toluene	0.5	U	0.37	1	ug/L
10061-02-6	t-1,3-Dichloropropene	0.5	U	0.29	1	ug/L

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/14/11
Project:	CTO WE08	Date Received:	12/15/11
Client Sample ID:	FT-GW437-2125	SDG No.:	C4998
Lab Sample ID:	C4998-14	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG039627.D	1		12/16/11	VG121511

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
10061-01-5	cis-1,3-Dichloropropene	0.5	U	0.31	1	ug/L
79-00-5	1,1,2-Trichloroethane	0.5	U	0.38	1	ug/L
110-75-8	2-Chloroethyl Vinyl ether	2.5	U	1.8	5	ug/L
591-78-6	2-Hexanone	2.5	U	1.9	5	ug/L
124-48-1	Dibromochloromethane	0.5	U	0.2	1	ug/L
106-93-4	1,2-Dibromoethane	0.5	U	0.41	1	ug/L
127-18-4	Tetrachloroethene	0.5	U	0.27	1	ug/L
108-90-7	Chlorobenzene	0.5	U	0.49	1	ug/L
100-41-4	Ethyl Benzene	0.5	U	0.2	1	ug/L
179601-23-1	m/p-Xylenes	1	U	0.95	2	ug/L
95-47-6	o-Xylene	0.5	U	0.43	1	ug/L
100-42-5	Styrene	0.5	U	0.36	1	ug/L
75-25-2	Bromoform	0.5	U	0.47	1	ug/L
98-82-8	Isopropylbenzene	0.5	U	0.45	1	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	0.5	U	0.31	1	ug/L
541-73-1	1,3-Dichlorobenzene	0.5	U	0.43	1	ug/L
106-46-7	1,4-Dichlorobenzene	0.5	U	0.32	1	ug/L
95-50-1	1,2-Dichlorobenzene	0.5	U	0.45	1	ug/L
96-12-8	1,2-Dibromo-3-Chloropropane	0.5	U	0.46	1	ug/L
120-82-1	1,2,4-Trichlorobenzene	0.5	U	0.2	1	ug/L
87-61-6	1,2,3-Trichlorobenzene	0.5	U	0.2	1	ug/L
123-91-1	1,4-Dioxane	10	U	20	20	ug/L
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	56.8		70 - 120	114%	SPK: 50
1868-53-7	Dibromofluoromethane	49.3		85 - 115	99%	SPK: 50
2037-26-5	Toluene-d8	47.1		85 - 120	94%	SPK: 50
460-00-4	4-Bromofluorobenzene	58		75 - 120	116%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	388088	3.9			
540-36-3	1,4-Difluorobenzene	780565	4.7			
3114-55-4	Chlorobenzene-d5	485208	9.68			
3855-82-1	1,4-Dichlorobenzene-d4	232731	13.38			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/14/11
Project:	CTO WE08	Date Received:	12/15/11
Client Sample ID:	FT-GW437-3135	SDG No.:	C4998
Lab Sample ID:	C4998-15	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG039640.D	1		12/16/11	VG121611

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	0.5	U	0.2	1	ug/L
74-87-3	Chloromethane	0.52	J	0.2	1	ug/L
75-01-4	Vinyl Chloride	0.5	U	0.34	1	ug/L
74-83-9	Bromomethane	0.5	U	0.2	1	ug/L
75-00-3	Chloroethane	0.5	U	0.2	1	ug/L
75-69-4	Trichlorofluoromethane	0.5	U	0.35	1	ug/L
76-13-1	1,1,2-Trichlorotrifluoroethane	0.5	U	0.45	1	ug/L
75-35-4	1,1-Dichloroethene	0.5	U	0.47	1	ug/L
67-64-1	Acetone	2.5	U	0.5	5	ug/L
75-15-0	Carbon Disulfide	0.5	U	0.2	1	ug/L
1634-04-4	Methyl tert-butyl Ether	0.5	U	0.35	1	ug/L
79-20-9	Methyl Acetate	0.5	U	0.2	1	ug/L
75-09-2	Methylene Chloride	0.5	U	0.41	1	ug/L
156-60-5	trans-1,2-Dichloroethene	0.5	U	0.41	1	ug/L
75-34-3	1,1-Dichloroethane	0.5	U	0.36	1	ug/L
110-82-7	Cyclohexane	0.5	U	0.2	1	ug/L
78-93-3	2-Butanone	2.5	U	1.3	5	ug/L
56-23-5	Carbon Tetrachloride	0.5	U	0.2	1	ug/L
156-59-2	cis-1,2-Dichloroethene	0.5	U	0.35	1	ug/L
74-97-5	Bromochloromethane	0.5	U	0.2	1	ug/L
67-66-3	Chloroform	0.5	U	0.34	1	ug/L
71-55-6	1,1,1-Trichloroethane	0.5	U	0.4	1	ug/L
108-87-2	Methylcyclohexane	0.5	U	0.2	1	ug/L
71-43-2	Benzene	0.5	U	0.32	1	ug/L
107-06-2	1,2-Dichloroethane	0.5	U	0.48	1	ug/L
79-01-6	Trichloroethene	0.5	U	0.28	1	ug/L
78-87-5	1,2-Dichloropropane	0.5	U	0.46	1	ug/L
75-27-4	Bromodichloromethane	0.5	U	0.36	1	ug/L
108-10-1	4-Methyl-2-Pentanone	2.5	U	2.1	5	ug/L
108-88-3	Toluene	0.5	U	0.37	1	ug/L
10061-02-6	t-1,3-Dichloropropene	0.5	U	0.29	1	ug/L

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/14/11
Project:	CTO WE08	Date Received:	12/15/11
Client Sample ID:	FT-GW437-3135	SDG No.:	C4998
Lab Sample ID:	C4998-15	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG039640.D	1		12/16/11	VG121611

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
10061-01-5	cis-1,3-Dichloropropene	0.5	U	0.31	1	ug/L
79-00-5	1,1,2-Trichloroethane	0.5	U	0.38	1	ug/L
110-75-8	2-Chloroethyl Vinyl ether	2.5	U	1.8	5	ug/L
591-78-6	2-Hexanone	2.5	U	1.9	5	ug/L
124-48-1	Dibromochloromethane	0.5	U	0.2	1	ug/L
106-93-4	1,2-Dibromoethane	0.5	U	0.41	1	ug/L
127-18-4	Tetrachloroethene	0.5	U	0.27	1	ug/L
108-90-7	Chlorobenzene	0.5	U	0.49	1	ug/L
100-41-4	Ethyl Benzene	0.5	U	0.2	1	ug/L
179601-23-1	m/p-Xylenes	1	U	0.95	2	ug/L
95-47-6	o-Xylene	0.5	U	0.43	1	ug/L
100-42-5	Styrene	0.5	U	0.36	1	ug/L
75-25-2	Bromoform	0.5	U	0.47	1	ug/L
98-82-8	Isopropylbenzene	0.5	U	0.45	1	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	0.5	U	0.31	1	ug/L
541-73-1	1,3-Dichlorobenzene	0.5	U	0.43	1	ug/L
106-46-7	1,4-Dichlorobenzene	0.5	U	0.32	1	ug/L
95-50-1	1,2-Dichlorobenzene	0.5	U	0.45	1	ug/L
96-12-8	1,2-Dibromo-3-Chloropropane	0.5	U	0.46	1	ug/L
120-82-1	1,2,4-Trichlorobenzene	0.5	U	0.2	1	ug/L
87-61-6	1,2,3-Trichlorobenzene	0.5	U	0.2	1	ug/L
123-91-1	1,4-Dioxane	10	U	20	20	ug/L
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	55.6		70 - 120	111%	SPK: 50
1868-53-7	Dibromofluoromethane	49.5		85 - 115	99%	SPK: 50
2037-26-5	Toluene-d8	42.6		85 - 120	85%	SPK: 50
460-00-4	4-Bromofluorobenzene	49.1		75 - 120	98%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	480361	3.89			
540-36-3	1,4-Difluorobenzene	875315	4.69			
3114-55-4	Chlorobenzene-d5	486556	9.67			
3855-82-1	1,4-Dichlorobenzene-d4	217345	13.38			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/14/11
Project:	CTO WE08	Date Received:	12/15/11
Client Sample ID:	FT-GW437-4145	SDG No.:	C4998
Lab Sample ID:	C4998-16	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG039629.D	1		12/16/11	VG121511

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	0.5	U	0.2	1	ug/L
74-87-3	Chloromethane	0.47	J	0.2	1	ug/L
75-01-4	Vinyl Chloride	0.5	U	0.34	1	ug/L
74-83-9	Bromomethane	0.5	U	0.2	1	ug/L
75-00-3	Chloroethane	0.5	U	0.2	1	ug/L
75-69-4	Trichlorofluoromethane	0.5	U	0.35	1	ug/L
76-13-1	1,1,2-Trichlorotrifluoroethane	0.5	U	0.45	1	ug/L
75-35-4	1,1-Dichloroethene	0.5	U	0.47	1	ug/L
67-64-1	Acetone	2.5	U	0.5	5	ug/L
75-15-0	Carbon Disulfide	0.5	U	0.2	1	ug/L
1634-04-4	Methyl tert-butyl Ether	0.5	U	0.35	1	ug/L
79-20-9	Methyl Acetate	0.5	U	0.2	1	ug/L
75-09-2	Methylene Chloride	0.5	U	0.41	1	ug/L
156-60-5	trans-1,2-Dichloroethene	0.5	U	0.41	1	ug/L
75-34-3	1,1-Dichloroethane	0.5	U	0.36	1	ug/L
110-82-7	Cyclohexane	0.5	U	0.2	1	ug/L
78-93-3	2-Butanone	2.5	U	1.3	5	ug/L
56-23-5	Carbon Tetrachloride	0.5	U	0.2	1	ug/L
156-59-2	cis-1,2-Dichloroethene	0.5	U	0.35	1	ug/L
74-97-5	Bromochloromethane	0.5	U	0.2	1	ug/L
67-66-3	Chloroform	0.5	U	0.34	1	ug/L
71-55-6	1,1,1-Trichloroethane	0.5	U	0.4	1	ug/L
108-87-2	Methylcyclohexane	0.5	U	0.2	1	ug/L
71-43-2	Benzene	0.5	U	0.32	1	ug/L
107-06-2	1,2-Dichloroethane	0.5	U	0.48	1	ug/L
79-01-6	Trichloroethene	0.5	U	0.28	1	ug/L
78-87-5	1,2-Dichloropropane	0.5	U	0.46	1	ug/L
75-27-4	Bromodichloromethane	0.5	U	0.36	1	ug/L
108-10-1	4-Methyl-2-Pentanone	2.5	U	2.1	5	ug/L
108-88-3	Toluene	0.5	U	0.37	1	ug/L
10061-02-6	t-1,3-Dichloropropene	0.5	U	0.29	1	ug/L

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/14/11
Project:	CTO WE08	Date Received:	12/15/11
Client Sample ID:	FT-GW437-4145	SDG No.:	C4998
Lab Sample ID:	C4998-16	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG039629.D	1		12/16/11	VG121511

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
10061-01-5	cis-1,3-Dichloropropene	0.5	U	0.31	1	ug/L
79-00-5	1,1,2-Trichloroethane	0.5	U	0.38	1	ug/L
110-75-8	2-Chloroethyl Vinyl ether	2.5	U	1.8	5	ug/L
591-78-6	2-Hexanone	2.5	U	1.9	5	ug/L
124-48-1	Dibromochloromethane	0.5	U	0.2	1	ug/L
106-93-4	1,2-Dibromoethane	0.5	U	0.41	1	ug/L
127-18-4	Tetrachloroethene	0.5	U	0.27	1	ug/L
108-90-7	Chlorobenzene	0.5	U	0.49	1	ug/L
100-41-4	Ethyl Benzene	0.5	U	0.2	1	ug/L
179601-23-1	m/p-Xylenes	1	U	0.95	2	ug/L
95-47-6	o-Xylene	0.5	U	0.43	1	ug/L
100-42-5	Styrene	0.5	U	0.36	1	ug/L
75-25-2	Bromoform	0.5	U	0.47	1	ug/L
98-82-8	Isopropylbenzene	0.5	U	0.45	1	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	0.5	U	0.31	1	ug/L
541-73-1	1,3-Dichlorobenzene	0.5	U	0.43	1	ug/L
106-46-7	1,4-Dichlorobenzene	0.5	U	0.32	1	ug/L
95-50-1	1,2-Dichlorobenzene	0.5	U	0.45	1	ug/L
96-12-8	1,2-Dibromo-3-Chloropropane	0.5	U	0.46	1	ug/L
120-82-1	1,2,4-Trichlorobenzene	0.5	U	0.2	1	ug/L
87-61-6	1,2,3-Trichlorobenzene	0.5	U	0.2	1	ug/L
123-91-1	1,4-Dioxane	10	U	20	20	ug/L
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	59		70 - 120	118%	SPK: 50
1868-53-7	Dibromofluoromethane	51.4		85 - 115	103%	SPK: 50
2037-26-5	Toluene-d8	42.9		85 - 120	86%	SPK: 50
460-00-4	4-Bromofluorobenzene	56.6		75 - 120	113%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	381060	3.89			
540-36-3	1,4-Difluorobenzene	754222	4.71			
3114-55-4	Chlorobenzene-d5	463934	9.68			
3855-82-1	1,4-Dichlorobenzene-d4	231046	13.39			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/14/11
Project:	CTO WE08	Date Received:	12/15/11
Client Sample ID:	FT-DUP02-20111214	SDG No.:	C4998
Lab Sample ID:	C4998-19	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG039643.D	1		12/16/11	VG121611

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	0.5	U	0.2	1	ug/L
74-87-3	Chloromethane	0.93	J	0.2	1	ug/L
75-01-4	Vinyl Chloride	0.5	U	0.34	1	ug/L
74-83-9	Bromomethane	0.5	U	0.2	1	ug/L
75-00-3	Chloroethane	0.5	U	0.2	1	ug/L
75-69-4	Trichlorofluoromethane	0.5	U	0.35	1	ug/L
76-13-1	1,1,2-Trichlorotrifluoroethane	0.5	U	0.45	1	ug/L
75-35-4	1,1-Dichloroethene	0.5	U	0.47	1	ug/L
67-64-1	Acetone	2.5	U	0.5	5	ug/L
75-15-0	Carbon Disulfide	0.5	U	0.2	1	ug/L
1634-04-4	Methyl tert-butyl Ether	0.5	U	0.35	1	ug/L
79-20-9	Methyl Acetate	0.5	U	0.2	1	ug/L
75-09-2	Methylene Chloride	0.5	U	0.41	1	ug/L
156-60-5	trans-1,2-Dichloroethene	0.5	U	0.41	1	ug/L
75-34-3	1,1-Dichloroethane	0.5	U	0.36	1	ug/L
110-82-7	Cyclohexane	0.5	U	0.2	1	ug/L
78-93-3	2-Butanone	2.5	U	1.3	5	ug/L
56-23-5	Carbon Tetrachloride	0.5	U	0.2	1	ug/L
156-59-2	cis-1,2-Dichloroethene	0.5	U	0.35	1	ug/L
74-97-5	Bromochloromethane	0.5	U	0.2	1	ug/L
67-66-3	Chloroform	0.69	J	0.34	1	ug/L
71-55-6	1,1,1-Trichloroethane	0.5	U	0.4	1	ug/L
108-87-2	Methylcyclohexane	0.5	U	0.2	1	ug/L
71-43-2	Benzene	0.5	U	0.32	1	ug/L
107-06-2	1,2-Dichloroethane	0.5	U	0.48	1	ug/L
79-01-6	Trichloroethene	0.5	U	0.28	1	ug/L
78-87-5	1,2-Dichloropropane	0.5	U	0.46	1	ug/L
75-27-4	Bromodichloromethane	0.5	U	0.36	1	ug/L
108-10-1	4-Methyl-2-Pentanone	2.5	U	2.1	5	ug/L
108-88-3	Toluene	0.5	U	0.37	1	ug/L
10061-02-6	t-1,3-Dichloropropene	0.5	U	0.29	1	ug/L

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/14/11
Project:	CTO WE08	Date Received:	12/15/11
Client Sample ID:	FT-DUP02-20111214	SDG No.:	C4998
Lab Sample ID:	C4998-19	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG039643.D	1		12/16/11	VG121611

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
10061-01-5	cis-1,3-Dichloropropene	0.5	U	0.31	1	ug/L
79-00-5	1,1,2-Trichloroethane	0.5	U	0.38	1	ug/L
110-75-8	2-Chloroethyl Vinyl ether	2.5	U	1.8	5	ug/L
591-78-6	2-Hexanone	2.5	U	1.9	5	ug/L
124-48-1	Dibromochloromethane	0.5	U	0.2	1	ug/L
106-93-4	1,2-Dibromoethane	0.5	U	0.41	1	ug/L
127-18-4	Tetrachloroethene	0.5	U	0.27	1	ug/L
108-90-7	Chlorobenzene	0.5	U	0.49	1	ug/L
100-41-4	Ethyl Benzene	0.5	U	0.2	1	ug/L
179601-23-1	m/p-Xylenes	1	U	0.95	2	ug/L
95-47-6	o-Xylene	0.5	U	0.43	1	ug/L
100-42-5	Styrene	0.5	U	0.36	1	ug/L
75-25-2	Bromoform	0.5	U	0.47	1	ug/L
98-82-8	Isopropylbenzene	0.5	U	0.45	1	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	0.5	U	0.31	1	ug/L
541-73-1	1,3-Dichlorobenzene	0.5	U	0.43	1	ug/L
106-46-7	1,4-Dichlorobenzene	0.5	U	0.32	1	ug/L
95-50-1	1,2-Dichlorobenzene	0.5	U	0.45	1	ug/L
96-12-8	1,2-Dibromo-3-Chloropropane	0.5	U	0.46	1	ug/L
120-82-1	1,2,4-Trichlorobenzene	0.5	U	0.2	1	ug/L
87-61-6	1,2,3-Trichlorobenzene	0.5	U	0.2	1	ug/L
123-91-1	1,4-Dioxane	10	U	20	20	ug/L
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	56		70 - 120	112%	SPK: 50
1868-53-7	Dibromofluoromethane	51		85 - 115	102%	SPK: 50
2037-26-5	Toluene-d8	43.4		85 - 120	87%	SPK: 50
460-00-4	4-Bromofluorobenzene	50		75 - 120	100%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	473523	3.89			
540-36-3	1,4-Difluorobenzene	854334	4.7			
3114-55-4	Chlorobenzene-d5	481840	9.68			
3855-82-1	1,4-Dichlorobenzene-d4	221725	13.38			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/14/11
Project:	CTO WE08	Date Received:	12/15/11
Client Sample ID:	FT-GW437-5155	SDG No.:	C4998
Lab Sample ID:	C4998-17	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG039641.D	1		12/16/11	VG121611

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	0.5	U	0.2	1	ug/L
74-87-3	Chloromethane	0.5	U	0.2	1	ug/L
75-01-4	Vinyl Chloride	0.5	U	0.34	1	ug/L
74-83-9	Bromomethane	0.5	U	0.2	1	ug/L
75-00-3	Chloroethane	0.5	U	0.2	1	ug/L
75-69-4	Trichlorofluoromethane	0.5	U	0.35	1	ug/L
76-13-1	1,1,2-Trichlorotrifluoroethane	0.5	U	0.45	1	ug/L
75-35-4	1,1-Dichloroethene	0.5	U	0.47	1	ug/L
67-64-1	Acetone	2.5	U	0.5	5	ug/L
75-15-0	Carbon Disulfide	0.5	U	0.2	1	ug/L
1634-04-4	Methyl tert-butyl Ether	0.5	U	0.35	1	ug/L
79-20-9	Methyl Acetate	0.5	U	0.2	1	ug/L
75-09-2	Methylene Chloride	0.5	U	0.41	1	ug/L
156-60-5	trans-1,2-Dichloroethene	0.5	U	0.41	1	ug/L
75-34-3	1,1-Dichloroethane	0.5	U	0.36	1	ug/L
110-82-7	Cyclohexane	0.5	U	0.2	1	ug/L
78-93-3	2-Butanone	2.5	U	1.3	5	ug/L
56-23-5	Carbon Tetrachloride	0.5	U	0.2	1	ug/L
156-59-2	cis-1,2-Dichloroethene	0.5	U	0.35	1	ug/L
74-97-5	Bromochloromethane	0.5	U	0.2	1	ug/L
67-66-3	Chloroform	0.66	J	0.34	1	ug/L
71-55-6	1,1,1-Trichloroethane	0.5	U	0.4	1	ug/L
108-87-2	Methylcyclohexane	0.5	U	0.2	1	ug/L
71-43-2	Benzene	0.5	U	0.32	1	ug/L
107-06-2	1,2-Dichloroethane	0.5	U	0.48	1	ug/L
79-01-6	Trichloroethene	0.5	U	0.28	1	ug/L
78-87-5	1,2-Dichloropropane	0.5	U	0.46	1	ug/L
75-27-4	Bromodichloromethane	0.5	U	0.36	1	ug/L
108-10-1	4-Methyl-2-Pentanone	2.5	U	2.1	5	ug/L
108-88-3	Toluene	0.5	U	0.37	1	ug/L
10061-02-6	t-1,3-Dichloropropene	0.5	U	0.29	1	ug/L

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/14/11
Project:	CTO WE08	Date Received:	12/15/11
Client Sample ID:	FT-GW437-5155	SDG No.:	C4998
Lab Sample ID:	C4998-17	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG039641.D	1		12/16/11	VG121611

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
10061-01-5	cis-1,3-Dichloropropene	0.5	U	0.31	1	ug/L
79-00-5	1,1,2-Trichloroethane	0.5	U	0.38	1	ug/L
110-75-8	2-Chloroethyl Vinyl ether	2.5	U	1.8	5	ug/L
591-78-6	2-Hexanone	2.5	U	1.9	5	ug/L
124-48-1	Dibromochloromethane	0.5	U	0.2	1	ug/L
106-93-4	1,2-Dibromoethane	0.5	U	0.41	1	ug/L
127-18-4	Tetrachloroethene	0.5	U	0.27	1	ug/L
108-90-7	Chlorobenzene	0.5	U	0.49	1	ug/L
100-41-4	Ethyl Benzene	0.5	U	0.2	1	ug/L
179601-23-1	m/p-Xylenes	1	U	0.95	2	ug/L
95-47-6	o-Xylene	0.5	U	0.43	1	ug/L
100-42-5	Styrene	0.5	U	0.36	1	ug/L
75-25-2	Bromoform	0.5	U	0.47	1	ug/L
98-82-8	Isopropylbenzene	0.5	U	0.45	1	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	0.5	U	0.31	1	ug/L
541-73-1	1,3-Dichlorobenzene	0.5	U	0.43	1	ug/L
106-46-7	1,4-Dichlorobenzene	0.5	U	0.32	1	ug/L
95-50-1	1,2-Dichlorobenzene	0.5	U	0.45	1	ug/L
96-12-8	1,2-Dibromo-3-Chloropropane	0.5	U	0.46	1	ug/L
120-82-1	1,2,4-Trichlorobenzene	0.5	U	0.2	1	ug/L
87-61-6	1,2,3-Trichlorobenzene	0.5	U	0.2	1	ug/L
123-91-1	1,4-Dioxane	10	U	20	20	ug/L
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	54		70 - 120	108%	SPK: 50
1868-53-7	Dibromofluoromethane	50.1		85 - 115	100%	SPK: 50
2037-26-5	Toluene-d8	46.5		85 - 120	93%	SPK: 50
460-00-4	4-Bromofluorobenzene	49.6		75 - 120	99%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	474218	3.9			
540-36-3	1,4-Difluorobenzene	877430	4.7			
3114-55-4	Chlorobenzene-d5	479881	9.67			
3855-82-1	1,4-Dichlorobenzene-d4	225362	13.37			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/13/11
Project:	CTO WE08	Date Received:	12/15/11
Client Sample ID:	FT-GW438-2125	SDG No.:	C4998
Lab Sample ID:	C4998-11	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG039624.D	1		12/16/11	VG121511

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	0.5	U	0.2	1	ug/L
74-87-3	Chloromethane	0.67	J	0.2	1	ug/L
75-01-4	Vinyl Chloride	0.5	U	0.34	1	ug/L
74-83-9	Bromomethane	0.5	U	0.2	1	ug/L
75-00-3	Chloroethane	0.5	U	0.2	1	ug/L
75-69-4	Trichlorofluoromethane	0.5	U	0.35	1	ug/L
76-13-1	1,1,2-Trichlorotrifluoroethane	0.5	U	0.45	1	ug/L
75-35-4	1,1-Dichloroethene	0.5	U	0.47	1	ug/L
67-64-1	Acetone	2.5	U	0.5	5	ug/L
75-15-0	Carbon Disulfide	0.5	U	0.2	1	ug/L
1634-04-4	Methyl tert-butyl Ether	0.5	U	0.35	1	ug/L
79-20-9	Methyl Acetate	0.5	U	0.2	1	ug/L
75-09-2	Methylene Chloride	0.5	U	0.41	1	ug/L
156-60-5	trans-1,2-Dichloroethene	0.5	U	0.41	1	ug/L
75-34-3	1,1-Dichloroethane	0.5	U	0.36	1	ug/L
110-82-7	Cyclohexane	0.5	U	0.2	1	ug/L
78-93-3	2-Butanone	2.5	U	1.3	5	ug/L
56-23-5	Carbon Tetrachloride	0.5	U	0.2	1	ug/L
156-59-2	cis-1,2-Dichloroethene	0.5	U	0.35	1	ug/L
74-97-5	Bromochloromethane	0.5	U	0.2	1	ug/L
67-66-3	Chloroform	0.5	U	0.34	1	ug/L
71-55-6	1,1,1-Trichloroethane	0.5	U	0.4	1	ug/L
108-87-2	Methylcyclohexane	0.5	U	0.2	1	ug/L
71-43-2	Benzene	0.5	U	0.32	1	ug/L
107-06-2	1,2-Dichloroethane	0.5	U	0.48	1	ug/L
79-01-6	Trichloroethene	0.5	U	0.28	1	ug/L
78-87-5	1,2-Dichloropropane	0.5	U	0.46	1	ug/L
75-27-4	Bromodichloromethane	0.5	U	0.36	1	ug/L
108-10-1	4-Methyl-2-Pentanone	2.5	U	2.1	5	ug/L
108-88-3	Toluene	0.5	U	0.37	1	ug/L
10061-02-6	t-1,3-Dichloropropene	0.5	U	0.29	1	ug/L

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/13/11
Project:	CTO WE08	Date Received:	12/15/11
Client Sample ID:	FT-GW438-2125	SDG No.:	C4998
Lab Sample ID:	C4998-11	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG039624.D	1		12/16/11	VG121511

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
10061-01-5	cis-1,3-Dichloropropene	0.5	U	0.31	1	ug/L
79-00-5	1,1,2-Trichloroethane	0.5	U	0.38	1	ug/L
110-75-8	2-Chloroethyl Vinyl ether	2.5	U	1.8	5	ug/L
591-78-6	2-Hexanone	2.5	U	1.9	5	ug/L
124-48-1	Dibromochloromethane	0.5	U	0.2	1	ug/L
106-93-4	1,2-Dibromoethane	0.5	U	0.41	1	ug/L
127-18-4	Tetrachloroethene	0.5	U	0.27	1	ug/L
108-90-7	Chlorobenzene	0.5	U	0.49	1	ug/L
100-41-4	Ethyl Benzene	0.5	U	0.2	1	ug/L
179601-23-1	m/p-Xylenes	1	U	0.95	2	ug/L
95-47-6	o-Xylene	0.5	U	0.43	1	ug/L
100-42-5	Styrene	0.5	U	0.36	1	ug/L
75-25-2	Bromoform	0.5	U	0.47	1	ug/L
98-82-8	Isopropylbenzene	0.5	U	0.45	1	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	0.5	U	0.31	1	ug/L
541-73-1	1,3-Dichlorobenzene	0.5	U	0.43	1	ug/L
106-46-7	1,4-Dichlorobenzene	0.5	U	0.32	1	ug/L
95-50-1	1,2-Dichlorobenzene	0.5	U	0.45	1	ug/L
96-12-8	1,2-Dibromo-3-Chloropropane	0.5	U	0.46	1	ug/L
120-82-1	1,2,4-Trichlorobenzene	0.5	U	0.2	1	ug/L
87-61-6	1,2,3-Trichlorobenzene	0.5	U	0.2	1	ug/L
123-91-1	1,4-Dioxane	10	U	20	20	ug/L
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	56.2		70 - 120	112%	SPK: 50
1868-53-7	Dibromofluoromethane	49.1		85 - 115	98%	SPK: 50
2037-26-5	Toluene-d8	44.4		85 - 120	89%	SPK: 50
460-00-4	4-Bromofluorobenzene	57.7		75 - 120	115%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	403016	3.9			
540-36-3	1,4-Difluorobenzene	799403	4.71			
3114-55-4	Chlorobenzene-d5	494417	9.68			
3855-82-1	1,4-Dichlorobenzene-d4	234591	13.39			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/13/11
Project:	CTO WE08	Date Received:	12/15/11
Client Sample ID:	FT-GW438-3135	SDG No.:	C4998
Lab Sample ID:	C4998-08	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG039618.D	1		12/16/11	VG121511

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	0.5	U	0.2	1	ug/L
74-87-3	Chloromethane	0.8	J	0.2	1	ug/L
75-01-4	Vinyl Chloride	0.5	U	0.34	1	ug/L
74-83-9	Bromomethane	0.5	U	0.2	1	ug/L
75-00-3	Chloroethane	0.5	U	0.2	1	ug/L
75-69-4	Trichlorofluoromethane	0.5	U	0.35	1	ug/L
76-13-1	1,1,2-Trichlorotrifluoroethane	0.5	U	0.45	1	ug/L
75-35-4	1,1-Dichloroethene	0.5	U	0.47	1	ug/L
67-64-1	Acetone	2.5	U	0.5	5	ug/L
75-15-0	Carbon Disulfide	0.5	U	0.2	1	ug/L
1634-04-4	Methyl tert-butyl Ether	0.5	U	0.35	1	ug/L
79-20-9	Methyl Acetate	0.5	U	0.2	1	ug/L
75-09-2	Methylene Chloride	0.5	U	0.41	1	ug/L
156-60-5	trans-1,2-Dichloroethene	0.5	U	0.41	1	ug/L
75-34-3	1,1-Dichloroethane	0.5	U	0.36	1	ug/L
110-82-7	Cyclohexane	0.5	U	0.2	1	ug/L
78-93-3	2-Butanone	2.5	U	1.3	5	ug/L
56-23-5	Carbon Tetrachloride	0.5	U	0.2	1	ug/L
156-59-2	cis-1,2-Dichloroethene	0.5	U	0.35	1	ug/L
74-97-5	Bromochloromethane	0.5	U	0.2	1	ug/L
67-66-3	Chloroform	0.5	U	0.34	1	ug/L
71-55-6	1,1,1-Trichloroethane	0.5	U	0.4	1	ug/L
108-87-2	Methylcyclohexane	0.5	U	0.2	1	ug/L
71-43-2	Benzene	0.5	U	0.32	1	ug/L
107-06-2	1,2-Dichloroethane	0.5	U	0.48	1	ug/L
79-01-6	Trichloroethene	0.5	U	0.28	1	ug/L
78-87-5	1,2-Dichloropropane	0.5	U	0.46	1	ug/L
75-27-4	Bromodichloromethane	0.5	U	0.36	1	ug/L
108-10-1	4-Methyl-2-Pentanone	2.5	U	2.1	5	ug/L
108-88-3	Toluene	0.5	U	0.37	1	ug/L
10061-02-6	t-1,3-Dichloropropene	0.5	U	0.29	1	ug/L

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/13/11
Project:	CTO WE08	Date Received:	12/15/11
Client Sample ID:	FT-GW438-3135	SDG No.:	C4998
Lab Sample ID:	C4998-08	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG039618.D	1		12/16/11	VG121511

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
10061-01-5	cis-1,3-Dichloropropene	0.5	U	0.31	1	ug/L
79-00-5	1,1,2-Trichloroethane	0.5	U	0.38	1	ug/L
110-75-8	2-Chloroethyl Vinyl ether	2.5	U	1.8	5	ug/L
591-78-6	2-Hexanone	2.5	U	1.9	5	ug/L
124-48-1	Dibromochloromethane	0.5	U	0.2	1	ug/L
106-93-4	1,2-Dibromoethane	0.5	U	0.41	1	ug/L
127-18-4	Tetrachloroethene	0.5	U	0.27	1	ug/L
108-90-7	Chlorobenzene	0.5	U	0.49	1	ug/L
100-41-4	Ethyl Benzene	0.5	U	0.2	1	ug/L
179601-23-1	m/p-Xylenes	1	U	0.95	2	ug/L
95-47-6	o-Xylene	0.5	U	0.43	1	ug/L
100-42-5	Styrene	0.5	U	0.36	1	ug/L
75-25-2	Bromoform	0.5	U	0.47	1	ug/L
98-82-8	Isopropylbenzene	0.5	U	0.45	1	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	0.5	U	0.31	1	ug/L
541-73-1	1,3-Dichlorobenzene	0.5	U	0.43	1	ug/L
106-46-7	1,4-Dichlorobenzene	0.5	U	0.32	1	ug/L
95-50-1	1,2-Dichlorobenzene	0.5	U	0.45	1	ug/L
96-12-8	1,2-Dibromo-3-Chloropropane	0.5	U	0.46	1	ug/L
120-82-1	1,2,4-Trichlorobenzene	0.5	U	0.2	1	ug/L
87-61-6	1,2,3-Trichlorobenzene	0.5	U	0.2	1	ug/L
123-91-1	1,4-Dioxane	10	U	20	20	ug/L
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	53.3		70 - 120	107%	SPK: 50
1868-53-7	Dibromofluoromethane	47.6		85 - 115	95%	SPK: 50
2037-26-5	Toluene-d8	46.3		85 - 120	93%	SPK: 50
460-00-4	4-Bromofluorobenzene	56		75 - 120	112%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	445372	3.91			
540-36-3	1,4-Difluorobenzene	861970	4.72			
3114-55-4	Chlorobenzene-d5	511540	9.69			
3855-82-1	1,4-Dichlorobenzene-d4	253201	13.39			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/13/11
Project:	CTO WE08	Date Received:	12/15/11
Client Sample ID:	FT-GW438-4145	SDG No.:	C4998
Lab Sample ID:	C4998-12	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG039625.D	1		12/16/11	VG121511

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	0.5	U	0.2	1	ug/L
74-87-3	Chloromethane	1.4		0.2	1	ug/L
75-01-4	Vinyl Chloride	0.5	U	0.34	1	ug/L
74-83-9	Bromomethane	0.5	U	0.2	1	ug/L
75-00-3	Chloroethane	0.5	U	0.2	1	ug/L
75-69-4	Trichlorofluoromethane	0.5	U	0.35	1	ug/L
76-13-1	1,1,2-Trichlorotrifluoroethane	0.5	U	0.45	1	ug/L
75-35-4	1,1-Dichloroethene	0.5	U	0.47	1	ug/L
67-64-1	Acetone	2.5	U	0.5	5	ug/L
75-15-0	Carbon Disulfide	0.5	U	0.2	1	ug/L
1634-04-4	Methyl tert-butyl Ether	0.5	U	0.35	1	ug/L
79-20-9	Methyl Acetate	0.5	U	0.2	1	ug/L
75-09-2	Methylene Chloride	0.5	U	0.41	1	ug/L
156-60-5	trans-1,2-Dichloroethene	0.5	U	0.41	1	ug/L
75-34-3	1,1-Dichloroethane	0.5	U	0.36	1	ug/L
110-82-7	Cyclohexane	0.5	U	0.2	1	ug/L
78-93-3	2-Butanone	2.5	U	1.3	5	ug/L
56-23-5	Carbon Tetrachloride	0.5	U	0.2	1	ug/L
156-59-2	cis-1,2-Dichloroethene	0.5	U	0.35	1	ug/L
74-97-5	Bromochloromethane	0.5	U	0.2	1	ug/L
67-66-3	Chloroform	0.5	U	0.34	1	ug/L
71-55-6	1,1,1-Trichloroethane	0.5	U	0.4	1	ug/L
108-87-2	Methylcyclohexane	0.5	U	0.2	1	ug/L
71-43-2	Benzene	0.5	U	0.32	1	ug/L
107-06-2	1,2-Dichloroethane	0.5	U	0.48	1	ug/L
79-01-6	Trichloroethene	0.5	U	0.28	1	ug/L
78-87-5	1,2-Dichloropropane	0.5	U	0.46	1	ug/L
75-27-4	Bromodichloromethane	0.5	U	0.36	1	ug/L
108-10-1	4-Methyl-2-Pentanone	2.5	U	2.1	5	ug/L
108-88-3	Toluene	0.5	U	0.37	1	ug/L
10061-02-6	t-1,3-Dichloropropene	0.5	U	0.29	1	ug/L

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/13/11
Project:	CTO WE08	Date Received:	12/15/11
Client Sample ID:	FT-GW438-4145	SDG No.:	C4998
Lab Sample ID:	C4998-12	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG039625.D	1		12/16/11	VG121511

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
10061-01-5	cis-1,3-Dichloropropene	0.5	U	0.31	1	ug/L
79-00-5	1,1,2-Trichloroethane	0.5	U	0.38	1	ug/L
110-75-8	2-Chloroethyl Vinyl ether	2.5	U	1.8	5	ug/L
591-78-6	2-Hexanone	2.5	U	1.9	5	ug/L
124-48-1	Dibromochloromethane	0.5	U	0.2	1	ug/L
106-93-4	1,2-Dibromoethane	0.5	U	0.41	1	ug/L
127-18-4	Tetrachloroethene	0.5	U	0.27	1	ug/L
108-90-7	Chlorobenzene	0.5	U	0.49	1	ug/L
100-41-4	Ethyl Benzene	0.5	U	0.2	1	ug/L
179601-23-1	m/p-Xylenes	1	U	0.95	2	ug/L
95-47-6	o-Xylene	0.5	U	0.43	1	ug/L
100-42-5	Styrene	0.5	U	0.36	1	ug/L
75-25-2	Bromoform	0.5	U	0.47	1	ug/L
98-82-8	Isopropylbenzene	0.5	U	0.45	1	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	0.5	U	0.31	1	ug/L
541-73-1	1,3-Dichlorobenzene	0.5	U	0.43	1	ug/L
106-46-7	1,4-Dichlorobenzene	0.5	U	0.32	1	ug/L
95-50-1	1,2-Dichlorobenzene	0.5	U	0.45	1	ug/L
96-12-8	1,2-Dibromo-3-Chloropropane	0.5	U	0.46	1	ug/L
120-82-1	1,2,4-Trichlorobenzene	0.5	U	0.2	1	ug/L
87-61-6	1,2,3-Trichlorobenzene	0.5	U	0.2	1	ug/L
123-91-1	1,4-Dioxane	10	U	20	20	ug/L
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	56.6		70 - 120	113%	SPK: 50
1868-53-7	Dibromofluoromethane	49.3		85 - 115	99%	SPK: 50
2037-26-5	Toluene-d8	48.3		85 - 120	97%	SPK: 50
460-00-4	4-Bromofluorobenzene	57.4		75 - 120	115%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	394934	3.9			
540-36-3	1,4-Difluorobenzene	788824	4.71			
3114-55-4	Chlorobenzene-d5	498761	9.68			
3855-82-1	1,4-Dichlorobenzene-d4	230469	13.39			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/13/11
Project:	CTO WE08	Date Received:	12/15/11
Client Sample ID:	FT-GW438-5155	SDG No.:	C4998
Lab Sample ID:	C4998-13	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG039626.D	1		12/16/11	VG121511

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	0.5	U	0.2	1	ug/L
74-87-3	Chloromethane	0.48	J	0.2	1	ug/L
75-01-4	Vinyl Chloride	0.5	U	0.34	1	ug/L
74-83-9	Bromomethane	0.5	U	0.2	1	ug/L
75-00-3	Chloroethane	0.5	U	0.2	1	ug/L
75-69-4	Trichlorofluoromethane	0.5	U	0.35	1	ug/L
76-13-1	1,1,2-Trichlorotrifluoroethane	0.5	U	0.45	1	ug/L
75-35-4	1,1-Dichloroethene	0.5	U	0.47	1	ug/L
67-64-1	Acetone	2.5	U	0.5	5	ug/L
75-15-0	Carbon Disulfide	0.5	U	0.2	1	ug/L
1634-04-4	Methyl tert-butyl Ether	0.5	U	0.35	1	ug/L
79-20-9	Methyl Acetate	0.5	U	0.2	1	ug/L
75-09-2	Methylene Chloride	0.5	U	0.41	1	ug/L
156-60-5	trans-1,2-Dichloroethene	0.5	U	0.41	1	ug/L
75-34-3	1,1-Dichloroethane	0.5	U	0.36	1	ug/L
110-82-7	Cyclohexane	0.5	U	0.2	1	ug/L
78-93-3	2-Butanone	2.5	U	1.3	5	ug/L
56-23-5	Carbon Tetrachloride	0.5	U	0.2	1	ug/L
156-59-2	cis-1,2-Dichloroethene	0.5	U	0.35	1	ug/L
74-97-5	Bromochloromethane	0.5	U	0.2	1	ug/L
67-66-3	Chloroform	0.87	J	0.34	1	ug/L
71-55-6	1,1,1-Trichloroethane	0.5	U	0.4	1	ug/L
108-87-2	Methylcyclohexane	0.5	U	0.2	1	ug/L
71-43-2	Benzene	0.5	U	0.32	1	ug/L
107-06-2	1,2-Dichloroethane	0.5	U	0.48	1	ug/L
79-01-6	Trichloroethene	0.5	U	0.28	1	ug/L
78-87-5	1,2-Dichloropropane	0.5	U	0.46	1	ug/L
75-27-4	Bromodichloromethane	0.5	U	0.36	1	ug/L
108-10-1	4-Methyl-2-Pentanone	2.5	U	2.1	5	ug/L
108-88-3	Toluene	0.5	U	0.37	1	ug/L
10061-02-6	t-1,3-Dichloropropene	0.5	U	0.29	1	ug/L

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/13/11
Project:	CTO WE08	Date Received:	12/15/11
Client Sample ID:	FT-GW438-5155	SDG No.:	C4998
Lab Sample ID:	C4998-13	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG039626.D	1		12/16/11	VG121511

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
10061-01-5	cis-1,3-Dichloropropene	0.5	U	0.31	1	ug/L
79-00-5	1,1,2-Trichloroethane	0.5	U	0.38	1	ug/L
110-75-8	2-Chloroethyl Vinyl ether	2.5	U	1.8	5	ug/L
591-78-6	2-Hexanone	2.5	U	1.9	5	ug/L
124-48-1	Dibromochloromethane	0.5	U	0.2	1	ug/L
106-93-4	1,2-Dibromoethane	0.5	U	0.41	1	ug/L
127-18-4	Tetrachloroethene	0.5	U	0.27	1	ug/L
108-90-7	Chlorobenzene	0.5	U	0.49	1	ug/L
100-41-4	Ethyl Benzene	0.5	U	0.2	1	ug/L
179601-23-1	m/p-Xylenes	1	U	0.95	2	ug/L
95-47-6	o-Xylene	0.5	U	0.43	1	ug/L
100-42-5	Styrene	0.5	U	0.36	1	ug/L
75-25-2	Bromoform	0.5	U	0.47	1	ug/L
98-82-8	Isopropylbenzene	0.5	U	0.45	1	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	0.5	U	0.31	1	ug/L
541-73-1	1,3-Dichlorobenzene	0.5	U	0.43	1	ug/L
106-46-7	1,4-Dichlorobenzene	0.5	U	0.32	1	ug/L
95-50-1	1,2-Dichlorobenzene	0.5	U	0.45	1	ug/L
96-12-8	1,2-Dibromo-3-Chloropropane	0.5	U	0.46	1	ug/L
120-82-1	1,2,4-Trichlorobenzene	0.5	U	0.2	1	ug/L
87-61-6	1,2,3-Trichlorobenzene	0.5	U	0.2	1	ug/L
123-91-1	1,4-Dioxane	10	U	20	20	ug/L
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	58.4		70 - 120	117%	SPK: 50
1868-53-7	Dibromofluoromethane	50.8		85 - 115	102%	SPK: 50
2037-26-5	Toluene-d8	40.2	*	85 - 120	81%	SPK: 50
460-00-4	4-Bromofluorobenzene	55.1		75 - 120	110%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	403914	3.9			
540-36-3	1,4-Difluorobenzene	762815	4.71			
3114-55-4	Chlorobenzene-d5	479763	9.68			
3855-82-1	1,4-Dichlorobenzene-d4	222913	13.39			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/13/11
Project:	CTO WE08	Date Received:	12/15/11
Client Sample ID:	FT-GW438-5155RE	SDG No.:	C4998
Lab Sample ID:	C4998-13RE	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG039639.D	1		12/16/11	VG121611

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	0.5	U	0.2	1	ug/L
74-87-3	Chloromethane	0.5	U	0.2	1	ug/L
75-01-4	Vinyl Chloride	0.5	U	0.34	1	ug/L
74-83-9	Bromomethane	0.5	U	0.2	1	ug/L
75-00-3	Chloroethane	0.5	U	0.2	1	ug/L
75-69-4	Trichlorofluoromethane	0.5	U	0.35	1	ug/L
76-13-1	1,1,2-Trichlorotrifluoroethane	0.5	U	0.45	1	ug/L
75-35-4	1,1-Dichloroethene	0.5	U	0.47	1	ug/L
67-64-1	Acetone	2.5	U	0.5	5	ug/L
75-15-0	Carbon Disulfide	0.5	U	0.2	1	ug/L
1634-04-4	Methyl tert-butyl Ether	0.5	U	0.35	1	ug/L
79-20-9	Methyl Acetate	0.5	U	0.2	1	ug/L
75-09-2	Methylene Chloride	0.5	U	0.41	1	ug/L
156-60-5	trans-1,2-Dichloroethene	0.5	U	0.41	1	ug/L
75-34-3	1,1-Dichloroethane	0.5	U	0.36	1	ug/L
110-82-7	Cyclohexane	0.5	U	0.2	1	ug/L
78-93-3	2-Butanone	2.5	U	1.3	5	ug/L
56-23-5	Carbon Tetrachloride	0.5	U	0.2	1	ug/L
156-59-2	cis-1,2-Dichloroethene	0.5	U	0.35	1	ug/L
74-97-5	Bromochloromethane	0.5	U	0.2	1	ug/L
67-66-3	Chloroform	0.59	J	0.34	1	ug/L
71-55-6	1,1,1-Trichloroethane	0.5	U	0.4	1	ug/L
108-87-2	Methylcyclohexane	0.5	U	0.2	1	ug/L
71-43-2	Benzene	0.5	U	0.32	1	ug/L
107-06-2	1,2-Dichloroethane	0.5	U	0.48	1	ug/L
79-01-6	Trichloroethene	0.5	U	0.28	1	ug/L
78-87-5	1,2-Dichloropropane	0.5	U	0.46	1	ug/L
75-27-4	Bromodichloromethane	0.5	U	0.36	1	ug/L
108-10-1	4-Methyl-2-Pentanone	2.5	U	2.1	5	ug/L
108-88-3	Toluene	0.5	U	0.37	1	ug/L
10061-02-6	t-1,3-Dichloropropene	0.5	U	0.29	1	ug/L

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/13/11
Project:	CTO WE08	Date Received:	12/15/11
Client Sample ID:	FT-GW438-5155RE	SDG No.:	C4998
Lab Sample ID:	C4998-13RE	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG039639.D	1		12/16/11	VG121611

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
10061-01-5	cis-1,3-Dichloropropene	0.5	U	0.31	1	ug/L
79-00-5	1,1,2-Trichloroethane	0.5	U	0.38	1	ug/L
110-75-8	2-Chloroethyl Vinyl ether	2.5	U	1.8	5	ug/L
591-78-6	2-Hexanone	2.5	U	1.9	5	ug/L
124-48-1	Dibromochloromethane	0.5	U	0.2	1	ug/L
106-93-4	1,2-Dibromoethane	0.5	U	0.41	1	ug/L
127-18-4	Tetrachloroethene	0.5	U	0.27	1	ug/L
108-90-7	Chlorobenzene	0.5	U	0.49	1	ug/L
100-41-4	Ethyl Benzene	0.5	U	0.2	1	ug/L
179601-23-1	m/p-Xylenes	1	U	0.95	2	ug/L
95-47-6	o-Xylene	0.5	U	0.43	1	ug/L
100-42-5	Styrene	0.5	U	0.36	1	ug/L
75-25-2	Bromoform	0.5	U	0.47	1	ug/L
98-82-8	Isopropylbenzene	0.5	U	0.45	1	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	0.5	U	0.31	1	ug/L
541-73-1	1,3-Dichlorobenzene	0.5	U	0.43	1	ug/L
106-46-7	1,4-Dichlorobenzene	0.5	U	0.32	1	ug/L
95-50-1	1,2-Dichlorobenzene	0.5	U	0.45	1	ug/L
96-12-8	1,2-Dibromo-3-Chloropropane	0.5	U	0.46	1	ug/L
120-82-1	1,2,4-Trichlorobenzene	0.5	U	0.2	1	ug/L
87-61-6	1,2,3-Trichlorobenzene	0.5	U	0.2	1	ug/L
123-91-1	1,4-Dioxane	10	U	20	20	ug/L
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	54.9		70 - 120	110%	SPK: 50
1868-53-7	Dibromofluoromethane	49.9		85 - 115	100%	SPK: 50
2037-26-5	Toluene-d8	40.2	*	85 - 120	80%	SPK: 50
460-00-4	4-Bromofluorobenzene	48.9		75 - 120	98%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	495293	3.89			
540-36-3	1,4-Difluorobenzene	893528	4.69			
3114-55-4	Chlorobenzene-d5	492301	9.67			
3855-82-1	1,4-Dichlorobenzene-d4	219747	13.38			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/13/11
Project:	CTO WE08	Date Received:	12/15/11
Client Sample ID:	FT-GW439-2125	SDG No.:	C4998
Lab Sample ID:	C4998-02	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG039619.D	1		12/16/11	VG121511

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	0.5	U	0.2	1	ug/L
74-87-3	Chloromethane	0.62	J	0.2	1	ug/L
75-01-4	Vinyl Chloride	0.5	U	0.34	1	ug/L
74-83-9	Bromomethane	0.5	U	0.2	1	ug/L
75-00-3	Chloroethane	0.5	U	0.2	1	ug/L
75-69-4	Trichlorofluoromethane	0.5	U	0.35	1	ug/L
76-13-1	1,1,2-Trichlorotrifluoroethane	0.5	U	0.45	1	ug/L
75-35-4	1,1-Dichloroethene	0.5	U	0.47	1	ug/L
67-64-1	Acetone	2.5	U	0.5	5	ug/L
75-15-0	Carbon Disulfide	0.5	U	0.2	1	ug/L
1634-04-4	Methyl tert-butyl Ether	0.5	U	0.35	1	ug/L
79-20-9	Methyl Acetate	0.5	U	0.2	1	ug/L
75-09-2	Methylene Chloride	0.5	U	0.41	1	ug/L
156-60-5	trans-1,2-Dichloroethene	0.5	U	0.41	1	ug/L
75-34-3	1,1-Dichloroethane	0.5	U	0.36	1	ug/L
110-82-7	Cyclohexane	0.5	U	0.2	1	ug/L
78-93-3	2-Butanone	2.5	U	1.3	5	ug/L
56-23-5	Carbon Tetrachloride	0.5	U	0.2	1	ug/L
156-59-2	cis-1,2-Dichloroethene	0.5	U	0.35	1	ug/L
74-97-5	Bromochloromethane	0.5	U	0.2	1	ug/L
67-66-3	Chloroform	0.5	U	0.34	1	ug/L
71-55-6	1,1,1-Trichloroethane	0.5	U	0.4	1	ug/L
108-87-2	Methylcyclohexane	0.5	U	0.2	1	ug/L
71-43-2	Benzene	0.5	U	0.32	1	ug/L
107-06-2	1,2-Dichloroethane	0.5	U	0.48	1	ug/L
79-01-6	Trichloroethene	0.5	U	0.28	1	ug/L
78-87-5	1,2-Dichloropropane	0.5	U	0.46	1	ug/L
75-27-4	Bromodichloromethane	0.5	U	0.36	1	ug/L
108-10-1	4-Methyl-2-Pentanone	2.5	U	2.1	5	ug/L
108-88-3	Toluene	0.5	U	0.37	1	ug/L
10061-02-6	t-1,3-Dichloropropene	0.5	U	0.29	1	ug/L

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/13/11
Project:	CTO WE08	Date Received:	12/15/11
Client Sample ID:	FT-GW439-2125	SDG No.:	C4998
Lab Sample ID:	C4998-02	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG039619.D	1		12/16/11	VG121511

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
10061-01-5	cis-1,3-Dichloropropene	0.5	U	0.31	1	ug/L
79-00-5	1,1,2-Trichloroethane	0.5	U	0.38	1	ug/L
110-75-8	2-Chloroethyl Vinyl ether	2.5	U	1.8	5	ug/L
591-78-6	2-Hexanone	2.5	U	1.9	5	ug/L
124-48-1	Dibromochloromethane	0.5	U	0.2	1	ug/L
106-93-4	1,2-Dibromoethane	0.5	U	0.41	1	ug/L
127-18-4	Tetrachloroethene	0.5	U	0.27	1	ug/L
108-90-7	Chlorobenzene	0.5	U	0.49	1	ug/L
100-41-4	Ethyl Benzene	0.5	U	0.2	1	ug/L
179601-23-1	m/p-Xylenes	1	U	0.95	2	ug/L
95-47-6	o-Xylene	0.5	U	0.43	1	ug/L
100-42-5	Styrene	0.5	U	0.36	1	ug/L
75-25-2	Bromoform	0.5	U	0.47	1	ug/L
98-82-8	Isopropylbenzene	0.5	U	0.45	1	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	0.5	U	0.31	1	ug/L
541-73-1	1,3-Dichlorobenzene	0.5	U	0.43	1	ug/L
106-46-7	1,4-Dichlorobenzene	0.5	U	0.32	1	ug/L
95-50-1	1,2-Dichlorobenzene	0.5	U	0.45	1	ug/L
96-12-8	1,2-Dibromo-3-Chloropropane	0.5	U	0.46	1	ug/L
120-82-1	1,2,4-Trichlorobenzene	0.5	U	0.2	1	ug/L
87-61-6	1,2,3-Trichlorobenzene	0.5	U	0.2	1	ug/L
123-91-1	1,4-Dioxane	10	U	20	20	ug/L
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	57.4		70 - 120	115%	SPK: 50
1868-53-7	Dibromofluoromethane	49.8		85 - 115	100%	SPK: 50
2037-26-5	Toluene-d8	48.1		85 - 120	96%	SPK: 50
460-00-4	4-Bromofluorobenzene	58		75 - 120	116%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	415933	3.9			
540-36-3	1,4-Difluorobenzene	826531	4.72			
3114-55-4	Chlorobenzene-d5	523703	9.68			
3855-82-1	1,4-Dichlorobenzene-d4	253006	13.39			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/13/11
Project:	CTO WE08	Date Received:	12/15/11
Client Sample ID:	FT-GW439-3135	SDG No.:	C4998
Lab Sample ID:	C4998-03	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG039620.D	1		12/16/11	VG121511

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	0.5	U	0.2	1	ug/L
74-87-3	Chloromethane	0.5	U	0.2	1	ug/L
75-01-4	Vinyl Chloride	0.5	U	0.34	1	ug/L
74-83-9	Bromomethane	0.5	U	0.2	1	ug/L
75-00-3	Chloroethane	0.5	U	0.2	1	ug/L
75-69-4	Trichlorofluoromethane	0.5	U	0.35	1	ug/L
76-13-1	1,1,2-Trichlorotrifluoroethane	0.5	U	0.45	1	ug/L
75-35-4	1,1-Dichloroethene	0.5	U	0.47	1	ug/L
67-64-1	Acetone	1.3	J	0.5	5	ug/L
75-15-0	Carbon Disulfide	0.5	U	0.2	1	ug/L
1634-04-4	Methyl tert-butyl Ether	0.5	U	0.35	1	ug/L
79-20-9	Methyl Acetate	0.5	U	0.2	1	ug/L
75-09-2	Methylene Chloride	0.5	U	0.41	1	ug/L
156-60-5	trans-1,2-Dichloroethene	0.5	U	0.41	1	ug/L
75-34-3	1,1-Dichloroethane	1.3		0.36	1	ug/L
110-82-7	Cyclohexane	0.5	U	0.2	1	ug/L
78-93-3	2-Butanone	2.5	U	1.3	5	ug/L
56-23-5	Carbon Tetrachloride	0.5	U	0.2	1	ug/L
156-59-2	cis-1,2-Dichloroethene	0.71	J	0.35	1	ug/L
74-97-5	Bromochloromethane	0.5	U	0.2	1	ug/L
67-66-3	Chloroform	0.5	U	0.34	1	ug/L
71-55-6	1,1,1-Trichloroethane	0.5	U	0.4	1	ug/L
108-87-2	Methylcyclohexane	0.5	U	0.2	1	ug/L
71-43-2	Benzene	0.5	U	0.32	1	ug/L
107-06-2	1,2-Dichloroethane	0.5	U	0.48	1	ug/L
79-01-6	Trichloroethene	0.5	U	0.28	1	ug/L
78-87-5	1,2-Dichloropropane	0.5	U	0.46	1	ug/L
75-27-4	Bromodichloromethane	0.5	U	0.36	1	ug/L
108-10-1	4-Methyl-2-Pentanone	2.5	U	2.1	5	ug/L
108-88-3	Toluene	0.5	U	0.37	1	ug/L
10061-02-6	t-1,3-Dichloropropene	0.5	U	0.29	1	ug/L

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/13/11
Project:	CTO WE08	Date Received:	12/15/11
Client Sample ID:	FT-GW439-3135	SDG No.:	C4998
Lab Sample ID:	C4998-03	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG039620.D	1		12/16/11	VG121511

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
10061-01-5	cis-1,3-Dichloropropene	0.5	U	0.31	1	ug/L
79-00-5	1,1,2-Trichloroethane	0.5	U	0.38	1	ug/L
110-75-8	2-Chloroethyl Vinyl ether	2.5	U	1.8	5	ug/L
591-78-6	2-Hexanone	2.5	U	1.9	5	ug/L
124-48-1	Dibromochloromethane	0.5	U	0.2	1	ug/L
106-93-4	1,2-Dibromoethane	0.5	U	0.41	1	ug/L
127-18-4	Tetrachloroethene	0.5	U	0.27	1	ug/L
108-90-7	Chlorobenzene	0.5	U	0.49	1	ug/L
100-41-4	Ethyl Benzene	0.5	U	0.2	1	ug/L
179601-23-1	m/p-Xylenes	1	U	0.95	2	ug/L
95-47-6	o-Xylene	0.5	U	0.43	1	ug/L
100-42-5	Styrene	0.5	U	0.36	1	ug/L
75-25-2	Bromoform	0.5	U	0.47	1	ug/L
98-82-8	Isopropylbenzene	0.5	U	0.45	1	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	0.5	U	0.31	1	ug/L
541-73-1	1,3-Dichlorobenzene	0.5	U	0.43	1	ug/L
106-46-7	1,4-Dichlorobenzene	0.5	U	0.32	1	ug/L
95-50-1	1,2-Dichlorobenzene	0.5	U	0.45	1	ug/L
96-12-8	1,2-Dibromo-3-Chloropropane	0.5	U	0.46	1	ug/L
120-82-1	1,2,4-Trichlorobenzene	0.5	U	0.2	1	ug/L
87-61-6	1,2,3-Trichlorobenzene	0.5	U	0.2	1	ug/L
123-91-1	1,4-Dioxane	10	U	20	20	ug/L
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	55.9		70 - 120	112%	SPK: 50
1868-53-7	Dibromofluoromethane	47.8		85 - 115	96%	SPK: 50
2037-26-5	Toluene-d8	47.8		85 - 120	96%	SPK: 50
460-00-4	4-Bromofluorobenzene	55.9		75 - 120	112%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	421076	3.91			
540-36-3	1,4-Difluorobenzene	829397	4.71			
3114-55-4	Chlorobenzene-d5	487997	9.68			
3855-82-1	1,4-Dichlorobenzene-d4	245486	13.39			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/13/11
Project:	CTO WE08	Date Received:	12/15/11
Client Sample ID:	FT-DUP01-20111213	SDG No.:	C4998
Lab Sample ID:	C4998-18	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG039642.D	1		12/16/11	VG121611

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	0.5	U	0.2	1	ug/L
74-87-3	Chloromethane	0.5	U	0.2	1	ug/L
75-01-4	Vinyl Chloride	0.5	U	0.34	1	ug/L
74-83-9	Bromomethane	0.5	U	0.2	1	ug/L
75-00-3	Chloroethane	0.5	U	0.2	1	ug/L
75-69-4	Trichlorofluoromethane	0.5	U	0.35	1	ug/L
76-13-1	1,1,2-Trichlorotrifluoroethane	0.5	U	0.45	1	ug/L
75-35-4	1,1-Dichloroethene	0.5	U	0.47	1	ug/L
67-64-1	Acetone	2.5	U	0.5	5	ug/L
75-15-0	Carbon Disulfide	0.5	U	0.2	1	ug/L
1634-04-4	Methyl tert-butyl Ether	0.5	U	0.35	1	ug/L
79-20-9	Methyl Acetate	0.5	U	0.2	1	ug/L
75-09-2	Methylene Chloride	0.5	U	0.41	1	ug/L
156-60-5	trans-1,2-Dichloroethene	0.5	U	0.41	1	ug/L
75-34-3	1,1-Dichloroethane	0.5	U	0.36	1	ug/L
110-82-7	Cyclohexane	0.5	U	0.2	1	ug/L
78-93-3	2-Butanone	2.5	U	1.3	5	ug/L
56-23-5	Carbon Tetrachloride	0.5	U	0.2	1	ug/L
156-59-2	cis-1,2-Dichloroethene	0.63	J	0.35	1	ug/L
74-97-5	Bromochloromethane	0.5	U	0.2	1	ug/L
67-66-3	Chloroform	0.5	U	0.34	1	ug/L
71-55-6	1,1,1-Trichloroethane	0.5	U	0.4	1	ug/L
108-87-2	Methylcyclohexane	0.5	U	0.2	1	ug/L
71-43-2	Benzene	0.5	U	0.32	1	ug/L
107-06-2	1,2-Dichloroethane	0.5	U	0.48	1	ug/L
79-01-6	Trichloroethene	0.5	U	0.28	1	ug/L
78-87-5	1,2-Dichloropropane	0.5	U	0.46	1	ug/L
75-27-4	Bromodichloromethane	0.5	U	0.36	1	ug/L
108-10-1	4-Methyl-2-Pentanone	2.5	U	2.1	5	ug/L
108-88-3	Toluene	0.5	U	0.37	1	ug/L
10061-02-6	t-1,3-Dichloropropene	0.5	U	0.29	1	ug/L

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/13/11
Project:	CTO WE08	Date Received:	12/15/11
Client Sample ID:	FT-DUP01-20111213	SDG No.:	C4998
Lab Sample ID:	C4998-18	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG039642.D	1		12/16/11	VG121611

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
10061-01-5	cis-1,3-Dichloropropene	0.5	U	0.31	1	ug/L
79-00-5	1,1,2-Trichloroethane	0.5	U	0.38	1	ug/L
110-75-8	2-Chloroethyl Vinyl ether	2.5	U	1.8	5	ug/L
591-78-6	2-Hexanone	2.5	U	1.9	5	ug/L
124-48-1	Dibromochloromethane	0.5	U	0.2	1	ug/L
106-93-4	1,2-Dibromoethane	0.5	U	0.41	1	ug/L
127-18-4	Tetrachloroethene	0.5	U	0.27	1	ug/L
108-90-7	Chlorobenzene	0.5	U	0.49	1	ug/L
100-41-4	Ethyl Benzene	0.5	U	0.2	1	ug/L
179601-23-1	m/p-Xylenes	1	U	0.95	2	ug/L
95-47-6	o-Xylene	0.5	U	0.43	1	ug/L
100-42-5	Styrene	0.5	U	0.36	1	ug/L
75-25-2	Bromoform	0.5	U	0.47	1	ug/L
98-82-8	Isopropylbenzene	0.5	U	0.45	1	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	0.5	U	0.31	1	ug/L
541-73-1	1,3-Dichlorobenzene	0.5	U	0.43	1	ug/L
106-46-7	1,4-Dichlorobenzene	0.5	U	0.32	1	ug/L
95-50-1	1,2-Dichlorobenzene	0.5	U	0.45	1	ug/L
96-12-8	1,2-Dibromo-3-Chloropropane	0.5	U	0.46	1	ug/L
120-82-1	1,2,4-Trichlorobenzene	0.5	U	0.2	1	ug/L
87-61-6	1,2,3-Trichlorobenzene	0.5	U	0.2	1	ug/L
123-91-1	1,4-Dioxane	10	U	20	20	ug/L
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	55.9		70 - 120	112%	SPK: 50
1868-53-7	Dibromofluoromethane	50		85 - 115	100%	SPK: 50
2037-26-5	Toluene-d8	47.3		85 - 120	95%	SPK: 50
460-00-4	4-Bromofluorobenzene	50.8		75 - 120	102%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	480797	3.89			
540-36-3	1,4-Difluorobenzene	864302	4.7			
3114-55-4	Chlorobenzene-d5	474492	9.68			
3855-82-1	1,4-Dichlorobenzene-d4	224174	13.38			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/13/11
Project:	CTO WE08	Date Received:	12/15/11
Client Sample ID:	FT-GW439-4145	SDG No.:	C4998
Lab Sample ID:	C4998-04	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG039621.D	1		12/16/11	VG121511

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	0.5	U	0.2	1	ug/L
74-87-3	Chloromethane	1.3		0.2	1	ug/L
75-01-4	Vinyl Chloride	0.5	U	0.34	1	ug/L
74-83-9	Bromomethane	0.5	U	0.2	1	ug/L
75-00-3	Chloroethane	0.5	U	0.2	1	ug/L
75-69-4	Trichlorofluoromethane	0.5	U	0.35	1	ug/L
76-13-1	1,1,2-Trichlorotrifluoroethane	0.5	U	0.45	1	ug/L
75-35-4	1,1-Dichloroethene	0.5	U	0.47	1	ug/L
67-64-1	Acetone	2.5	U	0.5	5	ug/L
75-15-0	Carbon Disulfide	0.73	J	0.2	1	ug/L
1634-04-4	Methyl tert-butyl Ether	0.5	U	0.35	1	ug/L
79-20-9	Methyl Acetate	0.5	U	0.2	1	ug/L
75-09-2	Methylene Chloride	0.5	U	0.41	1	ug/L
156-60-5	trans-1,2-Dichloroethene	0.5	U	0.41	1	ug/L
75-34-3	1,1-Dichloroethane	0.63	J	0.36	1	ug/L
110-82-7	Cyclohexane	0.5	U	0.2	1	ug/L
78-93-3	2-Butanone	2.5	U	1.3	5	ug/L
56-23-5	Carbon Tetrachloride	0.5	U	0.2	1	ug/L
156-59-2	cis-1,2-Dichloroethene	0.5	U	0.35	1	ug/L
74-97-5	Bromochloromethane	0.5	U	0.2	1	ug/L
67-66-3	Chloroform	0.5	U	0.34	1	ug/L
71-55-6	1,1,1-Trichloroethane	0.5	U	0.4	1	ug/L
108-87-2	Methylcyclohexane	0.5	U	0.2	1	ug/L
71-43-2	Benzene	0.5	U	0.32	1	ug/L
107-06-2	1,2-Dichloroethane	0.5	U	0.48	1	ug/L
79-01-6	Trichloroethene	0.5	U	0.28	1	ug/L
78-87-5	1,2-Dichloropropane	0.5	U	0.46	1	ug/L
75-27-4	Bromodichloromethane	0.5	U	0.36	1	ug/L
108-10-1	4-Methyl-2-Pentanone	2.5	U	2.1	5	ug/L
108-88-3	Toluene	0.5	U	0.37	1	ug/L
10061-02-6	t-1,3-Dichloropropene	0.5	U	0.29	1	ug/L

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/13/11
Project:	CTO WE08	Date Received:	12/15/11
Client Sample ID:	FT-GW439-4145	SDG No.:	C4998
Lab Sample ID:	C4998-04	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG039621.D	1		12/16/11	VG121511

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
10061-01-5	cis-1,3-Dichloropropene	0.5	U	0.31	1	ug/L
79-00-5	1,1,2-Trichloroethane	0.5	U	0.38	1	ug/L
110-75-8	2-Chloroethyl Vinyl ether	2.5	U	1.8	5	ug/L
591-78-6	2-Hexanone	2.5	U	1.9	5	ug/L
124-48-1	Dibromochloromethane	0.5	U	0.2	1	ug/L
106-93-4	1,2-Dibromoethane	0.5	U	0.41	1	ug/L
127-18-4	Tetrachloroethene	0.5	U	0.27	1	ug/L
108-90-7	Chlorobenzene	0.5	U	0.49	1	ug/L
100-41-4	Ethyl Benzene	0.5	U	0.2	1	ug/L
179601-23-1	m/p-Xylenes	1	U	0.95	2	ug/L
95-47-6	o-Xylene	0.5	U	0.43	1	ug/L
100-42-5	Styrene	0.5	U	0.36	1	ug/L
75-25-2	Bromoform	0.5	U	0.47	1	ug/L
98-82-8	Isopropylbenzene	0.5	U	0.45	1	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	0.5	U	0.31	1	ug/L
541-73-1	1,3-Dichlorobenzene	0.5	U	0.43	1	ug/L
106-46-7	1,4-Dichlorobenzene	0.5	U	0.32	1	ug/L
95-50-1	1,2-Dichlorobenzene	0.5	U	0.45	1	ug/L
96-12-8	1,2-Dibromo-3-Chloropropane	0.5	U	0.46	1	ug/L
120-82-1	1,2,4-Trichlorobenzene	0.5	U	0.2	1	ug/L
87-61-6	1,2,3-Trichlorobenzene	0.5	U	0.2	1	ug/L
123-91-1	1,4-Dioxane	10	U	20	20	ug/L
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	58		70 - 120	116%	SPK: 50
1868-53-7	Dibromofluoromethane	48.5		85 - 115	97%	SPK: 50
2037-26-5	Toluene-d8	47.4		85 - 120	95%	SPK: 50
460-00-4	4-Bromofluorobenzene	56.9		75 - 120	114%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	408805	3.9			
540-36-3	1,4-Difluorobenzene	823152	4.72			
3114-55-4	Chlorobenzene-d5	512230	9.68			
3855-82-1	1,4-Dichlorobenzene-d4	246756	13.39			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/13/11
Project:	CTO WE08	Date Received:	12/15/11
Client Sample ID:	FT-GW439-5155	SDG No.:	C4998
Lab Sample ID:	C4998-05	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG039622.D	1		12/16/11	VG121511

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	0.5	U	0.2	1	ug/L
74-87-3	Chloromethane	0.5	U	0.2	1	ug/L
75-01-4	Vinyl Chloride	0.5	U	0.34	1	ug/L
74-83-9	Bromomethane	0.5	U	0.2	1	ug/L
75-00-3	Chloroethane	0.5	U	0.2	1	ug/L
75-69-4	Trichlorofluoromethane	0.5	U	0.35	1	ug/L
76-13-1	1,1,2-Trichlorotrifluoroethane	0.5	U	0.45	1	ug/L
75-35-4	1,1-Dichloroethene	0.5	U	0.47	1	ug/L
67-64-1	Acetone	2.5	U	0.5	5	ug/L
75-15-0	Carbon Disulfide	0.5	U	0.2	1	ug/L
1634-04-4	Methyl tert-butyl Ether	0.5	U	0.35	1	ug/L
79-20-9	Methyl Acetate	0.5	U	0.2	1	ug/L
75-09-2	Methylene Chloride	0.5	U	0.41	1	ug/L
156-60-5	trans-1,2-Dichloroethene	0.5	U	0.41	1	ug/L
75-34-3	1,1-Dichloroethane	0.5	U	0.36	1	ug/L
110-82-7	Cyclohexane	0.5	U	0.2	1	ug/L
78-93-3	2-Butanone	2.5	U	1.3	5	ug/L
56-23-5	Carbon Tetrachloride	0.5	U	0.2	1	ug/L
156-59-2	cis-1,2-Dichloroethene	0.5	U	0.35	1	ug/L
74-97-5	Bromochloromethane	0.5	U	0.2	1	ug/L
67-66-3	Chloroform	0.5	U	0.34	1	ug/L
71-55-6	1,1,1-Trichloroethane	0.5	U	0.4	1	ug/L
108-87-2	Methylcyclohexane	0.5	U	0.2	1	ug/L
71-43-2	Benzene	0.5	U	0.32	1	ug/L
107-06-2	1,2-Dichloroethane	0.5	U	0.48	1	ug/L
79-01-6	Trichloroethene	0.5	U	0.28	1	ug/L
78-87-5	1,2-Dichloropropane	0.5	U	0.46	1	ug/L
75-27-4	Bromodichloromethane	0.5	U	0.36	1	ug/L
108-10-1	4-Methyl-2-Pentanone	2.5	U	2.1	5	ug/L
108-88-3	Toluene	0.5	U	0.37	1	ug/L
10061-02-6	t-1,3-Dichloropropene	0.5	U	0.29	1	ug/L

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/13/11
Project:	CTO WE08	Date Received:	12/15/11
Client Sample ID:	FT-GW439-5155	SDG No.:	C4998
Lab Sample ID:	C4998-05	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG039622.D	1		12/16/11	VG121511

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
10061-01-5	cis-1,3-Dichloropropene	0.5	U	0.31	1	ug/L
79-00-5	1,1,2-Trichloroethane	0.5	U	0.38	1	ug/L
110-75-8	2-Chloroethyl Vinyl ether	2.5	U	1.8	5	ug/L
591-78-6	2-Hexanone	2.5	U	1.9	5	ug/L
124-48-1	Dibromochloromethane	0.5	U	0.2	1	ug/L
106-93-4	1,2-Dibromoethane	0.5	U	0.41	1	ug/L
127-18-4	Tetrachloroethene	0.5	U	0.27	1	ug/L
108-90-7	Chlorobenzene	0.5	U	0.49	1	ug/L
100-41-4	Ethyl Benzene	0.5	U	0.2	1	ug/L
179601-23-1	m/p-Xylenes	1	U	0.95	2	ug/L
95-47-6	o-Xylene	0.5	U	0.43	1	ug/L
100-42-5	Styrene	0.5	U	0.36	1	ug/L
75-25-2	Bromoform	0.5	U	0.47	1	ug/L
98-82-8	Isopropylbenzene	0.5	U	0.45	1	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	0.5	U	0.31	1	ug/L
541-73-1	1,3-Dichlorobenzene	0.5	U	0.43	1	ug/L
106-46-7	1,4-Dichlorobenzene	0.5	U	0.32	1	ug/L
95-50-1	1,2-Dichlorobenzene	0.5	U	0.45	1	ug/L
96-12-8	1,2-Dibromo-3-Chloropropane	0.5	U	0.46	1	ug/L
120-82-1	1,2,4-Trichlorobenzene	0.5	U	0.2	1	ug/L
87-61-6	1,2,3-Trichlorobenzene	0.5	U	0.2	1	ug/L
123-91-1	1,4-Dioxane	10	U	20	20	ug/L
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	56.9		70 - 120	114%	SPK: 50
1868-53-7	Dibromofluoromethane	50.1		85 - 115	100%	SPK: 50
2037-26-5	Toluene-d8	39.9	*	85 - 120	80%	SPK: 50
460-00-4	4-Bromofluorobenzene	56.6		75 - 120	113%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	403977	3.9			
540-36-3	1,4-Difluorobenzene	799425	4.71			
3114-55-4	Chlorobenzene-d5	471724	9.68			
3855-82-1	1,4-Dichlorobenzene-d4	249420	13.39			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/13/11
Project:	CTO WE08	Date Received:	12/15/11
Client Sample ID:	FT-GW439-5155RE	SDG No.:	C4998
Lab Sample ID:	C4998-05RE	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG039636.D	1		12/16/11	VG121611

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	0.5	U	0.2	1	ug/L
74-87-3	Chloromethane	0.5	U	0.2	1	ug/L
75-01-4	Vinyl Chloride	0.5	U	0.34	1	ug/L
74-83-9	Bromomethane	0.5	U	0.2	1	ug/L
75-00-3	Chloroethane	0.5	U	0.2	1	ug/L
75-69-4	Trichlorofluoromethane	0.5	U	0.35	1	ug/L
76-13-1	1,1,2-Trichlorotrifluoroethane	0.5	U	0.45	1	ug/L
75-35-4	1,1-Dichloroethene	0.5	U	0.47	1	ug/L
67-64-1	Acetone	2.5	U	0.5	5	ug/L
75-15-0	Carbon Disulfide	0.5	U	0.2	1	ug/L
1634-04-4	Methyl tert-butyl Ether	0.5	U	0.35	1	ug/L
79-20-9	Methyl Acetate	0.5	U	0.2	1	ug/L
75-09-2	Methylene Chloride	0.5	U	0.41	1	ug/L
156-60-5	trans-1,2-Dichloroethene	0.5	U	0.41	1	ug/L
75-34-3	1,1-Dichloroethane	0.5	U	0.36	1	ug/L
110-82-7	Cyclohexane	0.5	U	0.2	1	ug/L
78-93-3	2-Butanone	2.5	U	1.3	5	ug/L
56-23-5	Carbon Tetrachloride	0.5	U	0.2	1	ug/L
156-59-2	cis-1,2-Dichloroethene	0.5	U	0.35	1	ug/L
74-97-5	Bromochloromethane	0.5	U	0.2	1	ug/L
67-66-3	Chloroform	0.5	U	0.34	1	ug/L
71-55-6	1,1,1-Trichloroethane	0.5	U	0.4	1	ug/L
108-87-2	Methylcyclohexane	0.5	U	0.2	1	ug/L
71-43-2	Benzene	0.5	U	0.32	1	ug/L
107-06-2	1,2-Dichloroethane	0.5	U	0.48	1	ug/L
79-01-6	Trichloroethene	0.5	U	0.28	1	ug/L
78-87-5	1,2-Dichloropropane	0.5	U	0.46	1	ug/L
75-27-4	Bromodichloromethane	0.5	U	0.36	1	ug/L
108-10-1	4-Methyl-2-Pentanone	2.5	U	2.1	5	ug/L
108-88-3	Toluene	0.5	U	0.37	1	ug/L
10061-02-6	t-1,3-Dichloropropene	0.5	U	0.29	1	ug/L

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/13/11
Project:	CTO WE08	Date Received:	12/15/11
Client Sample ID:	FT-GW439-5155RE	SDG No.:	C4998
Lab Sample ID:	C4998-05RE	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG039636.D	1		12/16/11	VG121611

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
10061-01-5	cis-1,3-Dichloropropene	0.5	U	0.31	1	ug/L
79-00-5	1,1,2-Trichloroethane	0.5	U	0.38	1	ug/L
110-75-8	2-Chloroethyl Vinyl ether	2.5	U	1.8	5	ug/L
591-78-6	2-Hexanone	2.5	U	1.9	5	ug/L
124-48-1	Dibromochloromethane	0.5	U	0.2	1	ug/L
106-93-4	1,2-Dibromoethane	0.5	U	0.41	1	ug/L
127-18-4	Tetrachloroethene	0.5	U	0.27	1	ug/L
108-90-7	Chlorobenzene	0.5	U	0.49	1	ug/L
100-41-4	Ethyl Benzene	0.5	U	0.2	1	ug/L
179601-23-1	m/p-Xylenes	1	U	0.95	2	ug/L
95-47-6	o-Xylene	0.5	U	0.43	1	ug/L
100-42-5	Styrene	0.5	U	0.36	1	ug/L
75-25-2	Bromoform	0.5	U	0.47	1	ug/L
98-82-8	Isopropylbenzene	0.5	U	0.45	1	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	0.5	U	0.31	1	ug/L
541-73-1	1,3-Dichlorobenzene	0.5	U	0.43	1	ug/L
106-46-7	1,4-Dichlorobenzene	0.5	U	0.32	1	ug/L
95-50-1	1,2-Dichlorobenzene	0.5	U	0.45	1	ug/L
96-12-8	1,2-Dibromo-3-Chloropropane	0.5	U	0.46	1	ug/L
120-82-1	1,2,4-Trichlorobenzene	0.5	U	0.2	1	ug/L
87-61-6	1,2,3-Trichlorobenzene	0.5	U	0.2	1	ug/L
123-91-1	1,4-Dioxane	10	U	20	20	ug/L
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	51.9		70 - 120	104%	SPK: 50
1868-53-7	Dibromofluoromethane	47.8		85 - 115	96%	SPK: 50
2037-26-5	Toluene-d8	41	*	85 - 120	82%	SPK: 50
460-00-4	4-Bromofluorobenzene	47.8		75 - 120	96%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	537884	3.89			
540-36-3	1,4-Difluorobenzene	986745	4.69			
3114-55-4	Chlorobenzene-d5	533316	9.66			
3855-82-1	1,4-Dichlorobenzene-d4	244323	13.38			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/14/11
Project:	CTO WE08	Date Received:	12/15/11
Client Sample ID:	FT-GW440-2125	SDG No.:	C4998
Lab Sample ID:	C4998-20	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG039644.D	1		12/16/11	VG121611

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	0.5	U	0.2	1	ug/L
74-87-3	Chloromethane	0.5	U	0.2	1	ug/L
75-01-4	Vinyl Chloride	0.5	U	0.34	1	ug/L
74-83-9	Bromomethane	0.5	U	0.2	1	ug/L
75-00-3	Chloroethane	0.5	U	0.2	1	ug/L
75-69-4	Trichlorofluoromethane	0.5	U	0.35	1	ug/L
76-13-1	1,1,2-Trichlorotrifluoroethane	0.5	U	0.45	1	ug/L
75-35-4	1,1-Dichloroethene	0.5	U	0.47	1	ug/L
67-64-1	Acetone	2.5	U	0.5	5	ug/L
75-15-0	Carbon Disulfide	0.5	U	0.2	1	ug/L
1634-04-4	Methyl tert-butyl Ether	0.5	U	0.35	1	ug/L
79-20-9	Methyl Acetate	0.5	U	0.2	1	ug/L
75-09-2	Methylene Chloride	0.5	U	0.41	1	ug/L
156-60-5	trans-1,2-Dichloroethene	0.5	U	0.41	1	ug/L
75-34-3	1,1-Dichloroethane	0.5	U	0.36	1	ug/L
110-82-7	Cyclohexane	0.5	U	0.2	1	ug/L
78-93-3	2-Butanone	2.5	U	1.3	5	ug/L
56-23-5	Carbon Tetrachloride	0.5	U	0.2	1	ug/L
156-59-2	cis-1,2-Dichloroethene	0.5	U	0.35	1	ug/L
74-97-5	Bromochloromethane	0.5	U	0.2	1	ug/L
67-66-3	Chloroform	0.5	U	0.34	1	ug/L
71-55-6	1,1,1-Trichloroethane	0.5	U	0.4	1	ug/L
108-87-2	Methylcyclohexane	0.5	U	0.2	1	ug/L
71-43-2	Benzene	0.5	U	0.32	1	ug/L
107-06-2	1,2-Dichloroethane	0.5	U	0.48	1	ug/L
79-01-6	Trichloroethene	0.5	U	0.28	1	ug/L
78-87-5	1,2-Dichloropropane	0.5	U	0.46	1	ug/L
75-27-4	Bromodichloromethane	0.5	U	0.36	1	ug/L
108-10-1	4-Methyl-2-Pentanone	2.5	U	2.1	5	ug/L
108-88-3	Toluene	0.5	U	0.37	1	ug/L
10061-02-6	t-1,3-Dichloropropene	0.5	U	0.29	1	ug/L

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/14/11
Project:	CTO WE08	Date Received:	12/15/11
Client Sample ID:	FT-GW440-2125	SDG No.:	C4998
Lab Sample ID:	C4998-20	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG039644.D	1		12/16/11	VG121611

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
10061-01-5	cis-1,3-Dichloropropene	0.5	U	0.31	1	ug/L
79-00-5	1,1,2-Trichloroethane	0.5	U	0.38	1	ug/L
110-75-8	2-Chloroethyl Vinyl ether	2.5	U	1.8	5	ug/L
591-78-6	2-Hexanone	2.5	U	1.9	5	ug/L
124-48-1	Dibromochloromethane	0.5	U	0.2	1	ug/L
106-93-4	1,2-Dibromoethane	0.5	U	0.41	1	ug/L
127-18-4	Tetrachloroethene	0.5	U	0.27	1	ug/L
108-90-7	Chlorobenzene	0.5	U	0.49	1	ug/L
100-41-4	Ethyl Benzene	0.5	U	0.2	1	ug/L
179601-23-1	m/p-Xylenes	1	U	0.95	2	ug/L
95-47-6	o-Xylene	0.5	U	0.43	1	ug/L
100-42-5	Styrene	0.5	U	0.36	1	ug/L
75-25-2	Bromoform	0.5	U	0.47	1	ug/L
98-82-8	Isopropylbenzene	0.5	U	0.45	1	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	0.5	U	0.31	1	ug/L
541-73-1	1,3-Dichlorobenzene	0.5	U	0.43	1	ug/L
106-46-7	1,4-Dichlorobenzene	0.5	U	0.32	1	ug/L
95-50-1	1,2-Dichlorobenzene	0.5	U	0.45	1	ug/L
96-12-8	1,2-Dibromo-3-Chloropropane	0.5	U	0.46	1	ug/L
120-82-1	1,2,4-Trichlorobenzene	0.5	U	0.2	1	ug/L
87-61-6	1,2,3-Trichlorobenzene	0.5	U	0.2	1	ug/L
123-91-1	1,4-Dioxane	10	U	20	20	ug/L
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	56.5		70 - 120	113%	SPK: 50
1868-53-7	Dibromofluoromethane	50.6		85 - 115	101%	SPK: 50
2037-26-5	Toluene-d8	39.7	*	85 - 120	79%	SPK: 50
460-00-4	4-Bromofluorobenzene	50.4		75 - 120	101%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	455604	3.9			
540-36-3	1,4-Difluorobenzene	861348	4.71			
3114-55-4	Chlorobenzene-d5	479992	9.68			
3855-82-1	1,4-Dichlorobenzene-d4	218498	13.38			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/14/11
Project:	CTO WE08	Date Received:	12/15/11
Client Sample ID:	FT-GW440-2125RE	SDG No.:	C4998
Lab Sample ID:	C4998-20RE	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG039690.D	1		12/19/11	VG121911

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	0.5	U	0.2	1	ug/L
74-87-3	Chloromethane	0.5	U	0.2	1	ug/L
75-01-4	Vinyl Chloride	0.5	U	0.34	1	ug/L
74-83-9	Bromomethane	0.5	U	0.2	1	ug/L
75-00-3	Chloroethane	0.5	U	0.2	1	ug/L
75-69-4	Trichlorofluoromethane	0.5	U	0.35	1	ug/L
76-13-1	1,1,2-Trichlorotrifluoroethane	0.5	U	0.45	1	ug/L
75-35-4	1,1-Dichloroethene	0.5	U	0.47	1	ug/L
67-64-1	Acetone	2.5	U	0.5	5	ug/L
75-15-0	Carbon Disulfide	0.5	U	0.2	1	ug/L
1634-04-4	Methyl tert-butyl Ether	0.5	U	0.35	1	ug/L
79-20-9	Methyl Acetate	0.5	U	0.2	1	ug/L
75-09-2	Methylene Chloride	0.5	U	0.41	1	ug/L
156-60-5	trans-1,2-Dichloroethene	0.5	U	0.41	1	ug/L
75-34-3	1,1-Dichloroethane	0.5	U	0.36	1	ug/L
110-82-7	Cyclohexane	0.5	U	0.2	1	ug/L
78-93-3	2-Butanone	2.5	U	1.3	5	ug/L
56-23-5	Carbon Tetrachloride	0.5	U	0.2	1	ug/L
156-59-2	cis-1,2-Dichloroethene	0.5	U	0.35	1	ug/L
74-97-5	Bromochloromethane	0.5	U	0.2	1	ug/L
67-66-3	Chloroform	0.5	U	0.34	1	ug/L
71-55-6	1,1,1-Trichloroethane	0.5	U	0.4	1	ug/L
108-87-2	Methylcyclohexane	0.5	U	0.2	1	ug/L
71-43-2	Benzene	0.5	U	0.32	1	ug/L
107-06-2	1,2-Dichloroethane	0.5	U	0.48	1	ug/L
79-01-6	Trichloroethene	0.5	U	0.28	1	ug/L
78-87-5	1,2-Dichloropropane	0.5	U	0.46	1	ug/L
75-27-4	Bromodichloromethane	0.5	U	0.36	1	ug/L
108-10-1	4-Methyl-2-Pentanone	2.5	U	2.1	5	ug/L
108-88-3	Toluene	0.5	U	0.37	1	ug/L
10061-02-6	t-1,3-Dichloropropene	0.5	U	0.29	1	ug/L

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/14/11
Project:	CTO WE08	Date Received:	12/15/11
Client Sample ID:	FT-GW440-2125RE	SDG No.:	C4998
Lab Sample ID:	C4998-20RE	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG039690.D	1		12/19/11	VG121911

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
10061-01-5	cis-1,3-Dichloropropene	0.5	U	0.31	1	ug/L
79-00-5	1,1,2-Trichloroethane	0.5	U	0.38	1	ug/L
110-75-8	2-Chloroethyl Vinyl ether	2.5	U	1.8	5	ug/L
591-78-6	2-Hexanone	2.5	U	1.9	5	ug/L
124-48-1	Dibromochloromethane	0.5	U	0.2	1	ug/L
106-93-4	1,2-Dibromoethane	0.5	U	0.41	1	ug/L
127-18-4	Tetrachloroethene	0.5	U	0.27	1	ug/L
108-90-7	Chlorobenzene	0.5	U	0.49	1	ug/L
100-41-4	Ethyl Benzene	0.5	U	0.2	1	ug/L
179601-23-1	m/p-Xylenes	1	U	0.95	2	ug/L
95-47-6	o-Xylene	0.5	U	0.43	1	ug/L
100-42-5	Styrene	0.5	U	0.36	1	ug/L
75-25-2	Bromoform	0.5	U	0.47	1	ug/L
98-82-8	Isopropylbenzene	0.5	U	0.45	1	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	0.5	U	0.31	1	ug/L
541-73-1	1,3-Dichlorobenzene	0.5	U	0.43	1	ug/L
106-46-7	1,4-Dichlorobenzene	0.5	U	0.32	1	ug/L
95-50-1	1,2-Dichlorobenzene	0.5	U	0.45	1	ug/L
96-12-8	1,2-Dibromo-3-Chloropropane	0.5	U	0.46	1	ug/L
120-82-1	1,2,4-Trichlorobenzene	0.5	U	0.2	1	ug/L
87-61-6	1,2,3-Trichlorobenzene	0.5	U	0.2	1	ug/L
123-91-1	1,4-Dioxane	10	U	20	20	ug/L
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	56.1		70 - 120	112%	SPK: 50
1868-53-7	Dibromofluoromethane	49		85 - 115	98%	SPK: 50
2037-26-5	Toluene-d8	41.5	*	85 - 120	83%	SPK: 50
460-00-4	4-Bromofluorobenzene	52.3		75 - 120	105%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	514089	3.91			
540-36-3	1,4-Difluorobenzene	951108	4.72			
3114-55-4	Chlorobenzene-d5	550346	9.68			
3855-82-1	1,4-Dichlorobenzene-d4	247896	13.39			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/14/11
Project:	CTO WE08	Date Received:	12/15/11
Client Sample ID:	FT-GW440-3135	SDG No.:	C4998
Lab Sample ID:	C4998-21	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG039645.D	1		12/16/11	VG121611

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	0.5	U	0.2	1	ug/L
74-87-3	Chloromethane	0.5	U	0.2	1	ug/L
75-01-4	Vinyl Chloride	0.5	U	0.34	1	ug/L
74-83-9	Bromomethane	0.5	U	0.2	1	ug/L
75-00-3	Chloroethane	0.5	U	0.2	1	ug/L
75-69-4	Trichlorofluoromethane	0.5	U	0.35	1	ug/L
76-13-1	1,1,2-Trichlorotrifluoroethane	0.5	U	0.45	1	ug/L
75-35-4	1,1-Dichloroethene	0.5	U	0.47	1	ug/L
67-64-1	Acetone	1.2	J	0.5	5	ug/L
75-15-0	Carbon Disulfide	0.5	U	0.2	1	ug/L
1634-04-4	Methyl tert-butyl Ether	0.5	U	0.35	1	ug/L
79-20-9	Methyl Acetate	0.5	U	0.2	1	ug/L
75-09-2	Methylene Chloride	0.5	U	0.41	1	ug/L
156-60-5	trans-1,2-Dichloroethene	0.5	U	0.41	1	ug/L
75-34-3	1,1-Dichloroethane	0.5	U	0.36	1	ug/L
110-82-7	Cyclohexane	0.5	U	0.2	1	ug/L
78-93-3	2-Butanone	2.5	U	1.3	5	ug/L
56-23-5	Carbon Tetrachloride	0.5	U	0.2	1	ug/L
156-59-2	cis-1,2-Dichloroethene	0.5	U	0.35	1	ug/L
74-97-5	Bromochloromethane	0.5	U	0.2	1	ug/L
67-66-3	Chloroform	0.77	J	0.34	1	ug/L
71-55-6	1,1,1-Trichloroethane	0.5	U	0.4	1	ug/L
108-87-2	Methylcyclohexane	0.5	U	0.2	1	ug/L
71-43-2	Benzene	0.5	U	0.32	1	ug/L
107-06-2	1,2-Dichloroethane	0.5	U	0.48	1	ug/L
79-01-6	Trichloroethene	0.5	U	0.28	1	ug/L
78-87-5	1,2-Dichloropropane	0.5	U	0.46	1	ug/L
75-27-4	Bromodichloromethane	0.5	U	0.36	1	ug/L
108-10-1	4-Methyl-2-Pentanone	2.5	U	2.1	5	ug/L
108-88-3	Toluene	0.5	U	0.37	1	ug/L
10061-02-6	t-1,3-Dichloropropene	0.5	U	0.29	1	ug/L

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/14/11
Project:	CTO WE08	Date Received:	12/15/11
Client Sample ID:	FT-GW440-3135	SDG No.:	C4998
Lab Sample ID:	C4998-21	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG039645.D	1		12/16/11	VG121611

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
10061-01-5	cis-1,3-Dichloropropene	0.5	U	0.31	1	ug/L
79-00-5	1,1,2-Trichloroethane	0.5	U	0.38	1	ug/L
110-75-8	2-Chloroethyl Vinyl ether	2.5	U	1.8	5	ug/L
591-78-6	2-Hexanone	2.5	U	1.9	5	ug/L
124-48-1	Dibromochloromethane	0.5	U	0.2	1	ug/L
106-93-4	1,2-Dibromoethane	0.5	U	0.41	1	ug/L
127-18-4	Tetrachloroethene	0.5	U	0.27	1	ug/L
108-90-7	Chlorobenzene	0.5	U	0.49	1	ug/L
100-41-4	Ethyl Benzene	0.5	U	0.2	1	ug/L
179601-23-1	m/p-Xylenes	1	U	0.95	2	ug/L
95-47-6	o-Xylene	0.5	U	0.43	1	ug/L
100-42-5	Styrene	0.5	U	0.36	1	ug/L
75-25-2	Bromoform	0.5	U	0.47	1	ug/L
98-82-8	Isopropylbenzene	0.5	U	0.45	1	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	0.5	U	0.31	1	ug/L
541-73-1	1,3-Dichlorobenzene	0.5	U	0.43	1	ug/L
106-46-7	1,4-Dichlorobenzene	0.5	U	0.32	1	ug/L
95-50-1	1,2-Dichlorobenzene	0.5	U	0.45	1	ug/L
96-12-8	1,2-Dibromo-3-Chloropropane	0.5	U	0.46	1	ug/L
120-82-1	1,2,4-Trichlorobenzene	0.5	U	0.2	1	ug/L
87-61-6	1,2,3-Trichlorobenzene	0.5	U	0.2	1	ug/L
123-91-1	1,4-Dioxane	10	U	20	20	ug/L
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	55.8		70 - 120	112%	SPK: 50
1868-53-7	Dibromofluoromethane	49		85 - 115	98%	SPK: 50
2037-26-5	Toluene-d8	46.1		85 - 120	92%	SPK: 50
460-00-4	4-Bromofluorobenzene	50		75 - 120	100%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	471040	3.9			
540-36-3	1,4-Difluorobenzene	866501	4.71			
3114-55-4	Chlorobenzene-d5	482308	9.67			
3855-82-1	1,4-Dichlorobenzene-d4	216835	13.38			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/14/11
Project:	CTO WE08	Date Received:	12/15/11
Client Sample ID:	FT-GW440-4145	SDG No.:	C4998
Lab Sample ID:	C4998-22	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG039646.D	1		12/17/11	VG121611

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	0.5	U	0.2	1	ug/L
74-87-3	Chloromethane	0.5	U	0.2	1	ug/L
75-01-4	Vinyl Chloride	0.5	U	0.34	1	ug/L
74-83-9	Bromomethane	0.5	U	0.2	1	ug/L
75-00-3	Chloroethane	0.5	U	0.2	1	ug/L
75-69-4	Trichlorofluoromethane	0.5	U	0.35	1	ug/L
76-13-1	1,1,2-Trichlorotrifluoroethane	0.5	U	0.45	1	ug/L
75-35-4	1,1-Dichloroethene	0.5	U	0.47	1	ug/L
67-64-1	Acetone	2.5	U	0.5	5	ug/L
75-15-0	Carbon Disulfide	0.5	U	0.2	1	ug/L
1634-04-4	Methyl tert-butyl Ether	0.5	U	0.35	1	ug/L
79-20-9	Methyl Acetate	0.5	U	0.2	1	ug/L
75-09-2	Methylene Chloride	0.5	U	0.41	1	ug/L
156-60-5	trans-1,2-Dichloroethene	0.5	U	0.41	1	ug/L
75-34-3	1,1-Dichloroethane	0.5	U	0.36	1	ug/L
110-82-7	Cyclohexane	0.5	U	0.2	1	ug/L
78-93-3	2-Butanone	2.5	U	1.3	5	ug/L
56-23-5	Carbon Tetrachloride	0.5	U	0.2	1	ug/L
156-59-2	cis-1,2-Dichloroethene	0.5	U	0.35	1	ug/L
74-97-5	Bromochloromethane	0.5	U	0.2	1	ug/L
67-66-3	Chloroform	0.78	J	0.34	1	ug/L
71-55-6	1,1,1-Trichloroethane	0.5	U	0.4	1	ug/L
108-87-2	Methylcyclohexane	0.5	U	0.2	1	ug/L
71-43-2	Benzene	0.5	U	0.32	1	ug/L
107-06-2	1,2-Dichloroethane	0.5	U	0.48	1	ug/L
79-01-6	Trichloroethene	0.5	U	0.28	1	ug/L
78-87-5	1,2-Dichloropropane	0.5	U	0.46	1	ug/L
75-27-4	Bromodichloromethane	0.5	U	0.36	1	ug/L
108-10-1	4-Methyl-2-Pentanone	2.5	U	2.1	5	ug/L
108-88-3	Toluene	0.5	U	0.37	1	ug/L
10061-02-6	t-1,3-Dichloropropene	0.5	U	0.29	1	ug/L

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/14/11
Project:	CTO WE08	Date Received:	12/15/11
Client Sample ID:	FT-GW440-4145	SDG No.:	C4998
Lab Sample ID:	C4998-22	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG039646.D	1		12/17/11	VG121611

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
10061-01-5	cis-1,3-Dichloropropene	0.5	U	0.31	1	ug/L
79-00-5	1,1,2-Trichloroethane	0.5	U	0.38	1	ug/L
110-75-8	2-Chloroethyl Vinyl ether	2.5	U	1.8	5	ug/L
591-78-6	2-Hexanone	2.5	U	1.9	5	ug/L
124-48-1	Dibromochloromethane	0.5	U	0.2	1	ug/L
106-93-4	1,2-Dibromoethane	0.5	U	0.41	1	ug/L
127-18-4	Tetrachloroethene	0.5	U	0.27	1	ug/L
108-90-7	Chlorobenzene	0.5	U	0.49	1	ug/L
100-41-4	Ethyl Benzene	0.5	U	0.2	1	ug/L
179601-23-1	m/p-Xylenes	1	U	0.95	2	ug/L
95-47-6	o-Xylene	0.5	U	0.43	1	ug/L
100-42-5	Styrene	0.5	U	0.36	1	ug/L
75-25-2	Bromoform	0.5	U	0.47	1	ug/L
98-82-8	Isopropylbenzene	0.5	U	0.45	1	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	0.5	U	0.31	1	ug/L
541-73-1	1,3-Dichlorobenzene	0.5	U	0.43	1	ug/L
106-46-7	1,4-Dichlorobenzene	0.5	U	0.32	1	ug/L
95-50-1	1,2-Dichlorobenzene	0.5	U	0.45	1	ug/L
96-12-8	1,2-Dibromo-3-Chloropropane	0.5	U	0.46	1	ug/L
120-82-1	1,2,4-Trichlorobenzene	0.5	U	0.2	1	ug/L
87-61-6	1,2,3-Trichlorobenzene	0.5	U	0.2	1	ug/L
123-91-1	1,4-Dioxane	10	U	20	20	ug/L
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	56.7		70 - 120	113%	SPK: 50
1868-53-7	Dibromofluoromethane	49.4		85 - 115	99%	SPK: 50
2037-26-5	Toluene-d8	40.9	*	85 - 120	82%	SPK: 50
460-00-4	4-Bromofluorobenzene	48.2		75 - 120	96%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	469731	3.9			
540-36-3	1,4-Difluorobenzene	861554	4.7			
3114-55-4	Chlorobenzene-d5	472409	9.68			
3855-82-1	1,4-Dichlorobenzene-d4	215304	13.39			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/14/11
Project:	CTO WE08	Date Received:	12/15/11
Client Sample ID:	FT-GW440-4145RE	SDG No.:	C4998
Lab Sample ID:	C4998-22RE	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG039691.D	1		12/19/11	VG121911

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	0.5	U	0.2	1	ug/L
74-87-3	Chloromethane	0.5	U	0.2	1	ug/L
75-01-4	Vinyl Chloride	0.5	U	0.34	1	ug/L
74-83-9	Bromomethane	0.5	U	0.2	1	ug/L
75-00-3	Chloroethane	0.5	U	0.2	1	ug/L
75-69-4	Trichlorofluoromethane	0.5	U	0.35	1	ug/L
76-13-1	1,1,2-Trichlorotrifluoroethane	0.5	U	0.45	1	ug/L
75-35-4	1,1-Dichloroethene	0.5	U	0.47	1	ug/L
67-64-1	Acetone	2.5	U	0.5	5	ug/L
75-15-0	Carbon Disulfide	0.5	U	0.2	1	ug/L
1634-04-4	Methyl tert-butyl Ether	0.5	U	0.35	1	ug/L
79-20-9	Methyl Acetate	0.5	U	0.2	1	ug/L
75-09-2	Methylene Chloride	0.5	U	0.41	1	ug/L
156-60-5	trans-1,2-Dichloroethene	0.5	U	0.41	1	ug/L
75-34-3	1,1-Dichloroethane	0.5	U	0.36	1	ug/L
110-82-7	Cyclohexane	0.5	U	0.2	1	ug/L
78-93-3	2-Butanone	2.5	U	1.3	5	ug/L
56-23-5	Carbon Tetrachloride	0.5	U	0.2	1	ug/L
156-59-2	cis-1,2-Dichloroethene	0.5	U	0.35	1	ug/L
74-97-5	Bromochloromethane	0.5	U	0.2	1	ug/L
67-66-3	Chloroform	0.73	J	0.34	1	ug/L
71-55-6	1,1,1-Trichloroethane	0.5	U	0.4	1	ug/L
108-87-2	Methylcyclohexane	0.5	U	0.2	1	ug/L
71-43-2	Benzene	0.5	U	0.32	1	ug/L
107-06-2	1,2-Dichloroethane	0.5	U	0.48	1	ug/L
79-01-6	Trichloroethene	0.5	U	0.28	1	ug/L
78-87-5	1,2-Dichloropropane	0.5	U	0.46	1	ug/L
75-27-4	Bromodichloromethane	0.5	U	0.36	1	ug/L
108-10-1	4-Methyl-2-Pentanone	2.5	U	2.1	5	ug/L
108-88-3	Toluene	0.5	U	0.37	1	ug/L
10061-02-6	t-1,3-Dichloropropene	0.5	U	0.29	1	ug/L

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/14/11
Project:	CTO WE08	Date Received:	12/15/11
Client Sample ID:	FT-GW440-4145RE	SDG No.:	C4998
Lab Sample ID:	C4998-22RE	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG039691.D	1		12/19/11	VG121911

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
10061-01-5	cis-1,3-Dichloropropene	0.5	U	0.31	1	ug/L
79-00-5	1,1,2-Trichloroethane	0.5	U	0.38	1	ug/L
110-75-8	2-Chloroethyl Vinyl ether	2.5	U	1.8	5	ug/L
591-78-6	2-Hexanone	2.5	U	1.9	5	ug/L
124-48-1	Dibromochloromethane	0.5	U	0.2	1	ug/L
106-93-4	1,2-Dibromoethane	0.5	U	0.41	1	ug/L
127-18-4	Tetrachloroethene	0.5	U	0.27	1	ug/L
108-90-7	Chlorobenzene	0.5	U	0.49	1	ug/L
100-41-4	Ethyl Benzene	0.5	U	0.2	1	ug/L
179601-23-1	m/p-Xylenes	1	U	0.95	2	ug/L
95-47-6	o-Xylene	0.5	U	0.43	1	ug/L
100-42-5	Styrene	0.5	U	0.36	1	ug/L
75-25-2	Bromoform	0.5	U	0.47	1	ug/L
98-82-8	Isopropylbenzene	0.5	U	0.45	1	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	0.5	U	0.31	1	ug/L
541-73-1	1,3-Dichlorobenzene	0.5	U	0.43	1	ug/L
106-46-7	1,4-Dichlorobenzene	0.5	U	0.32	1	ug/L
95-50-1	1,2-Dichlorobenzene	0.5	U	0.45	1	ug/L
96-12-8	1,2-Dibromo-3-Chloropropane	0.5	U	0.46	1	ug/L
120-82-1	1,2,4-Trichlorobenzene	0.5	U	0.2	1	ug/L
87-61-6	1,2,3-Trichlorobenzene	0.5	U	0.2	1	ug/L
123-91-1	1,4-Dioxane	10	U	20	20	ug/L
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	56.6		70 - 120	113%	SPK: 50
1868-53-7	Dibromofluoromethane	49.2		85 - 115	98%	SPK: 50
2037-26-5	Toluene-d8	42	*	85 - 120	84%	SPK: 50
460-00-4	4-Bromofluorobenzene	54.9		75 - 120	110%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	483028	3.91			
540-36-3	1,4-Difluorobenzene	909754	4.72			
3114-55-4	Chlorobenzene-d5	525185	9.69			
3855-82-1	1,4-Dichlorobenzene-d4	241214	13.39			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/14/11
Project:	CTO WE08	Date Received:	12/15/11
Client Sample ID:	FT-GW440-5155	SDG No.:	C4998
Lab Sample ID:	C4998-23	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG039647.D	1		12/17/11	VG121611

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	0.5	U	0.2	1	ug/L
74-87-3	Chloromethane	0.5	U	0.2	1	ug/L
75-01-4	Vinyl Chloride	0.5	U	0.34	1	ug/L
74-83-9	Bromomethane	0.5	U	0.2	1	ug/L
75-00-3	Chloroethane	0.5	U	0.2	1	ug/L
75-69-4	Trichlorofluoromethane	0.5	U	0.35	1	ug/L
76-13-1	1,1,2-Trichlorotrifluoroethane	0.5	U	0.45	1	ug/L
75-35-4	1,1-Dichloroethene	0.5	U	0.47	1	ug/L
67-64-1	Acetone	2.5	U	0.5	5	ug/L
75-15-0	Carbon Disulfide	0.5	U	0.2	1	ug/L
1634-04-4	Methyl tert-butyl Ether	0.5	U	0.35	1	ug/L
79-20-9	Methyl Acetate	0.5	U	0.2	1	ug/L
75-09-2	Methylene Chloride	0.5	U	0.41	1	ug/L
156-60-5	trans-1,2-Dichloroethene	0.5	U	0.41	1	ug/L
75-34-3	1,1-Dichloroethane	0.5	U	0.36	1	ug/L
110-82-7	Cyclohexane	0.5	U	0.2	1	ug/L
78-93-3	2-Butanone	2.5	U	1.3	5	ug/L
56-23-5	Carbon Tetrachloride	0.5	U	0.2	1	ug/L
156-59-2	cis-1,2-Dichloroethene	0.5	U	0.35	1	ug/L
74-97-5	Bromochloromethane	0.5	U	0.2	1	ug/L
67-66-3	Chloroform	0.76	J	0.34	1	ug/L
71-55-6	1,1,1-Trichloroethane	0.5	U	0.4	1	ug/L
108-87-2	Methylcyclohexane	0.5	U	0.2	1	ug/L
71-43-2	Benzene	0.5	U	0.32	1	ug/L
107-06-2	1,2-Dichloroethane	0.5	U	0.48	1	ug/L
79-01-6	Trichloroethene	0.5	U	0.28	1	ug/L
78-87-5	1,2-Dichloropropane	0.5	U	0.46	1	ug/L
75-27-4	Bromodichloromethane	0.5	U	0.36	1	ug/L
108-10-1	4-Methyl-2-Pentanone	2.5	U	2.1	5	ug/L
108-88-3	Toluene	0.41	J	0.37	1	ug/L
10061-02-6	t-1,3-Dichloropropene	0.5	U	0.29	1	ug/L

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/14/11
Project:	CTO WE08	Date Received:	12/15/11
Client Sample ID:	FT-GW440-5155	SDG No.:	C4998
Lab Sample ID:	C4998-23	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG039647.D	1		12/17/11	VG121611

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
10061-01-5	cis-1,3-Dichloropropene	0.5	U	0.31	1	ug/L
79-00-5	1,1,2-Trichloroethane	0.5	U	0.38	1	ug/L
110-75-8	2-Chloroethyl Vinyl ether	2.5	U	1.8	5	ug/L
591-78-6	2-Hexanone	2.5	U	1.9	5	ug/L
124-48-1	Dibromochloromethane	0.5	U	0.2	1	ug/L
106-93-4	1,2-Dibromoethane	0.5	U	0.41	1	ug/L
127-18-4	Tetrachloroethene	0.5	U	0.27	1	ug/L
108-90-7	Chlorobenzene	0.5	U	0.49	1	ug/L
100-41-4	Ethyl Benzene	0.5	U	0.2	1	ug/L
179601-23-1	m/p-Xylenes	1	U	0.95	2	ug/L
95-47-6	o-Xylene	0.5	U	0.43	1	ug/L
100-42-5	Styrene	0.5	U	0.36	1	ug/L
75-25-2	Bromoform	0.5	U	0.47	1	ug/L
98-82-8	Isopropylbenzene	0.5	U	0.45	1	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	0.5	U	0.31	1	ug/L
541-73-1	1,3-Dichlorobenzene	0.5	U	0.43	1	ug/L
106-46-7	1,4-Dichlorobenzene	0.5	U	0.32	1	ug/L
95-50-1	1,2-Dichlorobenzene	0.5	U	0.45	1	ug/L
96-12-8	1,2-Dibromo-3-Chloropropane	0.5	U	0.46	1	ug/L
120-82-1	1,2,4-Trichlorobenzene	0.5	U	0.2	1	ug/L
87-61-6	1,2,3-Trichlorobenzene	0.5	U	0.2	1	ug/L
123-91-1	1,4-Dioxane	10	U	20	20	ug/L
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	56.5		70 - 120	113%	SPK: 50
1868-53-7	Dibromofluoromethane	50.3		85 - 115	101%	SPK: 50
2037-26-5	Toluene-d8	48.5		85 - 120	97%	SPK: 50
460-00-4	4-Bromofluorobenzene	52		75 - 120	104%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	460569	3.9			
540-36-3	1,4-Difluorobenzene	841575	4.71			
3114-55-4	Chlorobenzene-d5	477631	9.68			
3855-82-1	1,4-Dichlorobenzene-d4	215257	13.39			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/13/11
Project:	CTO WE08	Date Received:	12/15/11
Client Sample ID:	FT-FB01-20111213	SDG No.:	C4998
Lab Sample ID:	C4998-06	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG039617.D	1		12/16/11	VG121511

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	0.5	U	0.2	1	ug/L
74-87-3	Chloromethane	0.5	U	0.2	1	ug/L
75-01-4	Vinyl Chloride	0.5	U	0.34	1	ug/L
74-83-9	Bromomethane	0.5	U	0.2	1	ug/L
75-00-3	Chloroethane	0.5	U	0.2	1	ug/L
75-69-4	Trichlorofluoromethane	0.5	U	0.35	1	ug/L
76-13-1	1,1,2-Trichlorotrifluoroethane	0.5	U	0.45	1	ug/L
75-35-4	1,1-Dichloroethene	0.5	U	0.47	1	ug/L
67-64-1	Acetone	2.5	U	0.5	5	ug/L
75-15-0	Carbon Disulfide	0.5	U	0.2	1	ug/L
1634-04-4	Methyl tert-butyl Ether	0.5	U	0.35	1	ug/L
79-20-9	Methyl Acetate	0.5	U	0.2	1	ug/L
75-09-2	Methylene Chloride	0.5	U	0.41	1	ug/L
156-60-5	trans-1,2-Dichloroethene	0.5	U	0.41	1	ug/L
75-34-3	1,1-Dichloroethane	0.5	U	0.36	1	ug/L
110-82-7	Cyclohexane	0.5	U	0.2	1	ug/L
78-93-3	2-Butanone	2.5	U	1.3	5	ug/L
56-23-5	Carbon Tetrachloride	0.5	U	0.2	1	ug/L
156-59-2	cis-1,2-Dichloroethene	0.5	U	0.35	1	ug/L
74-97-5	Bromochloromethane	0.5	U	0.2	1	ug/L
67-66-3	Chloroform	1.1		0.34	1	ug/L
71-55-6	1,1,1-Trichloroethane	0.5	U	0.4	1	ug/L
108-87-2	Methylcyclohexane	0.5	U	0.2	1	ug/L
71-43-2	Benzene	0.5	U	0.32	1	ug/L
107-06-2	1,2-Dichloroethane	0.5	U	0.48	1	ug/L
79-01-6	Trichloroethene	0.5	U	0.28	1	ug/L
78-87-5	1,2-Dichloropropane	0.5	U	0.46	1	ug/L
75-27-4	Bromodichloromethane	1.9		0.36	1	ug/L
108-10-1	4-Methyl-2-Pentanone	2.5	U	2.1	5	ug/L
108-88-3	Toluene	0.5	U	0.37	1	ug/L
10061-02-6	t-1,3-Dichloropropene	0.5	U	0.29	1	ug/L

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/13/11
Project:	CTO WE08	Date Received:	12/15/11
Client Sample ID:	FT-FB01-20111213	SDG No.:	C4998
Lab Sample ID:	C4998-06	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG039617.D	1		12/16/11	VG121511

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
10061-01-5	cis-1,3-Dichloropropene	0.5	U	0.31	1	ug/L
79-00-5	1,1,2-Trichloroethane	0.5	U	0.38	1	ug/L
110-75-8	2-Chloroethyl Vinyl ether	2.5	U	1.8	5	ug/L
591-78-6	2-Hexanone	2.5	U	1.9	5	ug/L
124-48-1	Dibromochloromethane	4.5		0.2	1	ug/L
106-93-4	1,2-Dibromoethane	0.5	U	0.41	1	ug/L
127-18-4	Tetrachloroethene	0.5	U	0.27	1	ug/L
108-90-7	Chlorobenzene	0.5	U	0.49	1	ug/L
100-41-4	Ethyl Benzene	0.5	U	0.2	1	ug/L
179601-23-1	m/p-Xylenes	1	U	0.95	2	ug/L
95-47-6	o-Xylene	0.5	U	0.43	1	ug/L
100-42-5	Styrene	0.5	U	0.36	1	ug/L
75-25-2	Bromoform	0.5	U	0.47	1	ug/L
98-82-8	Isopropylbenzene	0.5	U	0.45	1	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	0.5	U	0.31	1	ug/L
541-73-1	1,3-Dichlorobenzene	0.5	U	0.43	1	ug/L
106-46-7	1,4-Dichlorobenzene	0.5	U	0.32	1	ug/L
95-50-1	1,2-Dichlorobenzene	0.5	U	0.45	1	ug/L
96-12-8	1,2-Dibromo-3-Chloropropane	0.5	U	0.46	1	ug/L
120-82-1	1,2,4-Trichlorobenzene	0.5	U	0.2	1	ug/L
87-61-6	1,2,3-Trichlorobenzene	0.5	U	0.2	1	ug/L
123-91-1	1,4-Dioxane	10	U	20	20	ug/L
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	54.5		70 - 120	109%	SPK: 50
1868-53-7	Dibromofluoromethane	46.7		85 - 115	93%	SPK: 50
2037-26-5	Toluene-d8	46.3		85 - 120	93%	SPK: 50
460-00-4	4-Bromofluorobenzene	55.2		75 - 120	111%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	457071	3.91			
540-36-3	1,4-Difluorobenzene	905893	4.72			
3114-55-4	Chlorobenzene-d5	531388	9.71			
3855-82-1	1,4-Dichlorobenzene-d4	261823	13.41			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/13/11
Project:	CTO WE08	Date Received:	12/15/11
Client Sample ID:	FT-FB01-20111213RE	SDG No.:	C4998
Lab Sample ID:	C4998-06RE	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG039637.D	1		12/16/11	VG121611

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	0.5	U	0.2	1	ug/L
74-87-3	Chloromethane	0.5	U	0.2	1	ug/L
75-01-4	Vinyl Chloride	0.5	U	0.34	1	ug/L
74-83-9	Bromomethane	0.5	U	0.2	1	ug/L
75-00-3	Chloroethane	0.5	U	0.2	1	ug/L
75-69-4	Trichlorofluoromethane	0.5	U	0.35	1	ug/L
76-13-1	1,1,2-Trichlorotrifluoroethane	0.5	U	0.45	1	ug/L
75-35-4	1,1-Dichloroethene	0.5	U	0.47	1	ug/L
67-64-1	Acetone	2.5	U	0.5	5	ug/L
75-15-0	Carbon Disulfide	0.5	U	0.2	1	ug/L
1634-04-4	Methyl tert-butyl Ether	0.5	U	0.35	1	ug/L
79-20-9	Methyl Acetate	0.5	U	0.2	1	ug/L
75-09-2	Methylene Chloride	0.5	U	0.41	1	ug/L
156-60-5	trans-1,2-Dichloroethene	0.5	U	0.41	1	ug/L
75-34-3	1,1-Dichloroethane	0.5	U	0.36	1	ug/L
110-82-7	Cyclohexane	0.5	U	0.2	1	ug/L
78-93-3	2-Butanone	2.5	U	1.3	5	ug/L
56-23-5	Carbon Tetrachloride	0.5	U	0.2	1	ug/L
156-59-2	cis-1,2-Dichloroethene	0.5	U	0.35	1	ug/L
74-97-5	Bromochloromethane	0.5	U	0.2	1	ug/L
67-66-3	Chloroform	0.85	J	0.34	1	ug/L
71-55-6	1,1,1-Trichloroethane	0.5	U	0.4	1	ug/L
108-87-2	Methylcyclohexane	0.5	U	0.2	1	ug/L
71-43-2	Benzene	0.5	U	0.32	1	ug/L
107-06-2	1,2-Dichloroethane	0.5	U	0.48	1	ug/L
79-01-6	Trichloroethene	0.5	U	0.28	1	ug/L
78-87-5	1,2-Dichloropropane	0.5	U	0.46	1	ug/L
75-27-4	Bromodichloromethane	1.8		0.36	1	ug/L
108-10-1	4-Methyl-2-Pentanone	2.5	U	2.1	5	ug/L
108-88-3	Toluene	0.5	U	0.37	1	ug/L
10061-02-6	t-1,3-Dichloropropene	0.5	U	0.29	1	ug/L

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/13/11
Project:	CTO WE08	Date Received:	12/15/11
Client Sample ID:	FT-FB01-20111213RE	SDG No.:	C4998
Lab Sample ID:	C4998-06RE	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG039637.D	1		12/16/11	VG121611

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
10061-01-5	cis-1,3-Dichloropropene	0.5	U	0.31	1	ug/L
79-00-5	1,1,2-Trichloroethane	0.5	U	0.38	1	ug/L
110-75-8	2-Chloroethyl Vinyl ether	2.5	U	1.8	5	ug/L
591-78-6	2-Hexanone	2.5	U	1.9	5	ug/L
124-48-1	Dibromochloromethane	4.4		0.2	1	ug/L
106-93-4	1,2-Dibromoethane	0.5	U	0.41	1	ug/L
127-18-4	Tetrachloroethene	0.5	U	0.27	1	ug/L
108-90-7	Chlorobenzene	0.5	U	0.49	1	ug/L
100-41-4	Ethyl Benzene	0.5	U	0.2	1	ug/L
179601-23-1	m/p-Xylenes	1	U	0.95	2	ug/L
95-47-6	o-Xylene	0.5	U	0.43	1	ug/L
100-42-5	Styrene	0.5	U	0.36	1	ug/L
75-25-2	Bromoform	0.5	U	0.47	1	ug/L
98-82-8	Isopropylbenzene	0.5	U	0.45	1	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	0.5	U	0.31	1	ug/L
541-73-1	1,3-Dichlorobenzene	0.5	U	0.43	1	ug/L
106-46-7	1,4-Dichlorobenzene	0.5	U	0.32	1	ug/L
95-50-1	1,2-Dichlorobenzene	0.5	U	0.45	1	ug/L
96-12-8	1,2-Dibromo-3-Chloropropane	0.5	U	0.46	1	ug/L
120-82-1	1,2,4-Trichlorobenzene	0.5	U	0.2	1	ug/L
87-61-6	1,2,3-Trichlorobenzene	0.5	U	0.2	1	ug/L
123-91-1	1,4-Dioxane	10	U	20	20	ug/L
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	53.9		70 - 120	108%	SPK: 50
1868-53-7	Dibromofluoromethane	47.9		85 - 115	96%	SPK: 50
2037-26-5	Toluene-d8	46.5		85 - 120	93%	SPK: 50
460-00-4	4-Bromofluorobenzene	50.1		75 - 120	100%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	502758	3.88			
540-36-3	1,4-Difluorobenzene	929331	4.7			
3114-55-4	Chlorobenzene-d5	500402	9.67			
3855-82-1	1,4-Dichlorobenzene-d4	241366	13.38			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/13/11
Project:	CTO WE08	Date Received:	12/15/11
Client Sample ID:	FT-RB01-20111213	SDG No.:	C4998
Lab Sample ID:	C4998-07	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG039623.D	1		12/16/11	VG121511

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	0.5	U	0.2	1	ug/L
74-87-3	Chloromethane	0.5	U	0.2	1	ug/L
75-01-4	Vinyl Chloride	0.5	U	0.34	1	ug/L
74-83-9	Bromomethane	0.5	U	0.2	1	ug/L
75-00-3	Chloroethane	0.5	U	0.2	1	ug/L
75-69-4	Trichlorofluoromethane	0.5	U	0.35	1	ug/L
76-13-1	1,1,2-Trichlorotrifluoroethane	0.5	U	0.45	1	ug/L
75-35-4	1,1-Dichloroethene	0.5	U	0.47	1	ug/L
67-64-1	Acetone	2.5	U	0.5	5	ug/L
75-15-0	Carbon Disulfide	0.5	U	0.2	1	ug/L
1634-04-4	Methyl tert-butyl Ether	0.5	U	0.35	1	ug/L
79-20-9	Methyl Acetate	0.5	U	0.2	1	ug/L
75-09-2	Methylene Chloride	0.5	U	0.41	1	ug/L
156-60-5	trans-1,2-Dichloroethene	0.5	U	0.41	1	ug/L
75-34-3	1,1-Dichloroethane	0.5	U	0.36	1	ug/L
110-82-7	Cyclohexane	0.5	U	0.2	1	ug/L
78-93-3	2-Butanone	2.5	U	1.3	5	ug/L
56-23-5	Carbon Tetrachloride	0.5	U	0.2	1	ug/L
156-59-2	cis-1,2-Dichloroethene	0.5	U	0.35	1	ug/L
74-97-5	Bromochloromethane	0.5	U	0.2	1	ug/L
67-66-3	Chloroform	0.5	U	0.34	1	ug/L
71-55-6	1,1,1-Trichloroethane	0.5	U	0.4	1	ug/L
108-87-2	Methylcyclohexane	0.5	U	0.2	1	ug/L
71-43-2	Benzene	0.5	U	0.32	1	ug/L
107-06-2	1,2-Dichloroethane	0.5	U	0.48	1	ug/L
79-01-6	Trichloroethene	0.5	U	0.28	1	ug/L
78-87-5	1,2-Dichloropropane	0.5	U	0.46	1	ug/L
75-27-4	Bromodichloromethane	0.5	U	0.36	1	ug/L
108-10-1	4-Methyl-2-Pentanone	2.5	U	2.1	5	ug/L
108-88-3	Toluene	0.5	U	0.37	1	ug/L
10061-02-6	t-1,3-Dichloropropene	0.5	U	0.29	1	ug/L

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/13/11
Project:	CTO WE08	Date Received:	12/15/11
Client Sample ID:	FT-RB01-20111213	SDG No.:	C4998
Lab Sample ID:	C4998-07	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG039623.D	1		12/16/11	VG121511

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
10061-01-5	cis-1,3-Dichloropropene	0.5	U	0.31	1	ug/L
79-00-5	1,1,2-Trichloroethane	0.5	U	0.38	1	ug/L
110-75-8	2-Chloroethyl Vinyl ether	2.5	U	1.8	5	ug/L
591-78-6	2-Hexanone	2.5	U	1.9	5	ug/L
124-48-1	Dibromochloromethane	0.5	U	0.2	1	ug/L
106-93-4	1,2-Dibromoethane	0.5	U	0.41	1	ug/L
127-18-4	Tetrachloroethene	0.5	U	0.27	1	ug/L
108-90-7	Chlorobenzene	0.5	U	0.49	1	ug/L
100-41-4	Ethyl Benzene	0.5	U	0.2	1	ug/L
179601-23-1	m/p-Xylenes	1	U	0.95	2	ug/L
95-47-6	o-Xylene	0.5	U	0.43	1	ug/L
100-42-5	Styrene	0.5	U	0.36	1	ug/L
75-25-2	Bromoform	0.5	U	0.47	1	ug/L
98-82-8	Isopropylbenzene	0.5	U	0.45	1	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	0.5	U	0.31	1	ug/L
541-73-1	1,3-Dichlorobenzene	0.5	U	0.43	1	ug/L
106-46-7	1,4-Dichlorobenzene	0.5	U	0.32	1	ug/L
95-50-1	1,2-Dichlorobenzene	0.5	U	0.45	1	ug/L
96-12-8	1,2-Dibromo-3-Chloropropane	0.5	U	0.46	1	ug/L
120-82-1	1,2,4-Trichlorobenzene	0.5	U	0.2	1	ug/L
87-61-6	1,2,3-Trichlorobenzene	0.5	U	0.2	1	ug/L
123-91-1	1,4-Dioxane	10	U	20	20	ug/L
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	58.2		70 - 120	116%	SPK: 50
1868-53-7	Dibromofluoromethane	50.4		85 - 115	101%	SPK: 50
2037-26-5	Toluene-d8	34.4	*	85 - 120	69%	SPK: 50
460-00-4	4-Bromofluorobenzene	55.1		75 - 120	110%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	393816	3.9			
540-36-3	1,4-Difluorobenzene	773162	4.71			
3114-55-4	Chlorobenzene-d5	456406	9.68			
3855-82-1	1,4-Dichlorobenzene-d4	230378	13.39			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/13/11
Project:	CTO WE08	Date Received:	12/15/11
Client Sample ID:	FT-RB01-20111213RE	SDG No.:	C4998
Lab Sample ID:	C4998-07RE	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG039638.D	1		12/16/11	VG121611

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	0.5	U	0.2	1	ug/L
74-87-3	Chloromethane	0.5	U	0.2	1	ug/L
75-01-4	Vinyl Chloride	0.5	U	0.34	1	ug/L
74-83-9	Bromomethane	0.5	U	0.2	1	ug/L
75-00-3	Chloroethane	0.5	U	0.2	1	ug/L
75-69-4	Trichlorofluoromethane	0.5	U	0.35	1	ug/L
76-13-1	1,1,2-Trichlorotrifluoroethane	0.5	U	0.45	1	ug/L
75-35-4	1,1-Dichloroethene	0.5	U	0.47	1	ug/L
67-64-1	Acetone	2.5	U	0.5	5	ug/L
75-15-0	Carbon Disulfide	0.5	U	0.2	1	ug/L
1634-04-4	Methyl tert-butyl Ether	0.5	U	0.35	1	ug/L
79-20-9	Methyl Acetate	0.5	U	0.2	1	ug/L
75-09-2	Methylene Chloride	0.5	U	0.41	1	ug/L
156-60-5	trans-1,2-Dichloroethene	0.5	U	0.41	1	ug/L
75-34-3	1,1-Dichloroethane	0.5	U	0.36	1	ug/L
110-82-7	Cyclohexane	0.5	U	0.2	1	ug/L
78-93-3	2-Butanone	2.5	U	1.3	5	ug/L
56-23-5	Carbon Tetrachloride	0.5	U	0.2	1	ug/L
156-59-2	cis-1,2-Dichloroethene	0.5	U	0.35	1	ug/L
74-97-5	Bromochloromethane	0.5	U	0.2	1	ug/L
67-66-3	Chloroform	0.5	U	0.34	1	ug/L
71-55-6	1,1,1-Trichloroethane	0.5	U	0.4	1	ug/L
108-87-2	Methylcyclohexane	0.5	U	0.2	1	ug/L
71-43-2	Benzene	0.5	U	0.32	1	ug/L
107-06-2	1,2-Dichloroethane	0.5	U	0.48	1	ug/L
79-01-6	Trichloroethene	0.5	U	0.28	1	ug/L
78-87-5	1,2-Dichloropropane	0.5	U	0.46	1	ug/L
75-27-4	Bromodichloromethane	0.5	U	0.36	1	ug/L
108-10-1	4-Methyl-2-Pentanone	2.5	U	2.1	5	ug/L
108-88-3	Toluene	0.5	U	0.37	1	ug/L
10061-02-6	t-1,3-Dichloropropene	0.5	U	0.29	1	ug/L

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/13/11
Project:	CTO WE08	Date Received:	12/15/11
Client Sample ID:	FT-RB01-20111213RE	SDG No.:	C4998
Lab Sample ID:	C4998-07RE	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG039638.D	1		12/16/11	VG121611

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
10061-01-5	cis-1,3-Dichloropropene	0.5	U	0.31	1	ug/L
79-00-5	1,1,2-Trichloroethane	0.5	U	0.38	1	ug/L
110-75-8	2-Chloroethyl Vinyl ether	2.5	U	1.8	5	ug/L
591-78-6	2-Hexanone	2.5	U	1.9	5	ug/L
124-48-1	Dibromochloromethane	0.5	U	0.2	1	ug/L
106-93-4	1,2-Dibromoethane	0.5	U	0.41	1	ug/L
127-18-4	Tetrachloroethene	0.5	U	0.27	1	ug/L
108-90-7	Chlorobenzene	0.5	U	0.49	1	ug/L
100-41-4	Ethyl Benzene	0.5	U	0.2	1	ug/L
179601-23-1	m/p-Xylenes	1	U	0.95	2	ug/L
95-47-6	o-Xylene	0.5	U	0.43	1	ug/L
100-42-5	Styrene	0.5	U	0.36	1	ug/L
75-25-2	Bromoform	0.5	U	0.47	1	ug/L
98-82-8	Isopropylbenzene	0.5	U	0.45	1	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	0.5	U	0.31	1	ug/L
541-73-1	1,3-Dichlorobenzene	0.5	U	0.43	1	ug/L
106-46-7	1,4-Dichlorobenzene	0.5	U	0.32	1	ug/L
95-50-1	1,2-Dichlorobenzene	0.5	U	0.45	1	ug/L
96-12-8	1,2-Dibromo-3-Chloropropane	0.5	U	0.46	1	ug/L
120-82-1	1,2,4-Trichlorobenzene	0.5	U	0.2	1	ug/L
87-61-6	1,2,3-Trichlorobenzene	0.5	U	0.2	1	ug/L
123-91-1	1,4-Dioxane	10	U	20	20	ug/L
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	54.3		70 - 120	109%	SPK: 50
1868-53-7	Dibromofluoromethane	48.9		85 - 115	98%	SPK: 50
2037-26-5	Toluene-d8	36.5	*	85 - 120	73%	SPK: 50
460-00-4	4-Bromofluorobenzene	47.8		75 - 120	96%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	489749	3.89			
540-36-3	1,4-Difluorobenzene	901472	4.69			
3114-55-4	Chlorobenzene-d5	480115	9.67			
3855-82-1	1,4-Dichlorobenzene-d4	231240	13.38			

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/13/11
Project:	CTO WE08	Date Received:	12/15/11
Client Sample ID:	FT-TB01-20111213	SDG No.:	C4998
Lab Sample ID:	C4998-01	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG039616.D	1		12/16/11	VG121511

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
TARGETS						
75-71-8	Dichlorodifluoromethane	0.5	U	0.2	1	ug/L
74-87-3	Chloromethane	0.5	U	0.2	1	ug/L
75-01-4	Vinyl Chloride	0.5	U	0.34	1	ug/L
74-83-9	Bromomethane	0.5	U	0.2	1	ug/L
75-00-3	Chloroethane	0.5	U	0.2	1	ug/L
75-69-4	Trichlorofluoromethane	0.5	U	0.35	1	ug/L
76-13-1	1,1,2-Trichlorotrifluoroethane	0.5	U	0.45	1	ug/L
75-35-4	1,1-Dichloroethene	0.5	U	0.47	1	ug/L
67-64-1	Acetone	2.5	U	0.5	5	ug/L
75-15-0	Carbon Disulfide	0.5	U	0.2	1	ug/L
1634-04-4	Methyl tert-butyl Ether	0.5	U	0.35	1	ug/L
79-20-9	Methyl Acetate	0.5	U	0.2	1	ug/L
75-09-2	Methylene Chloride	0.5	U	0.41	1	ug/L
156-60-5	trans-1,2-Dichloroethene	0.5	U	0.41	1	ug/L
75-34-3	1,1-Dichloroethane	0.5	U	0.36	1	ug/L
110-82-7	Cyclohexane	0.5	U	0.2	1	ug/L
78-93-3	2-Butanone	2.5	U	1.3	5	ug/L
56-23-5	Carbon Tetrachloride	0.5	U	0.2	1	ug/L
156-59-2	cis-1,2-Dichloroethene	0.5	U	0.35	1	ug/L
74-97-5	Bromochloromethane	0.5	U	0.2	1	ug/L
67-66-3	Chloroform	0.5	U	0.34	1	ug/L
71-55-6	1,1,1-Trichloroethane	0.5	U	0.4	1	ug/L
108-87-2	Methylcyclohexane	0.5	U	0.2	1	ug/L
71-43-2	Benzene	0.5	U	0.32	1	ug/L
107-06-2	1,2-Dichloroethane	0.5	U	0.48	1	ug/L
79-01-6	Trichloroethene	0.5	U	0.28	1	ug/L
78-87-5	1,2-Dichloropropane	0.5	U	0.46	1	ug/L
75-27-4	Bromodichloromethane	0.5	U	0.36	1	ug/L
108-10-1	4-Methyl-2-Pentanone	2.5	U	2.1	5	ug/L
108-88-3	Toluene	0.5	U	0.37	1	ug/L
10061-02-6	t-1,3-Dichloropropene	0.5	U	0.29	1	ug/L

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Report of Analysis

Client:	Tetra Tech NUS, Inc.	Date Collected:	12/13/11
Project:	CTO WE08	Date Received:	12/15/11
Client Sample ID:	FT-TB01-20111213	SDG No.:	C4998
Lab Sample ID:	C4998-01	Matrix:	WATER
Analytical Method:	SW8260B	% Moisture:	100
Sample Wt/Vol:	5 Units: mL	Final Vol:	5000 uL
Soil Aliquot Vol:	uL	Test:	VOCMS Group1
GC Column:	RTX-VMS ID : 0.18	Level :	LOW

File ID/Qc Batch:	Dilution:	Prep Date	Date Analyzed	Prep Batch ID
VG039616.D	1		12/16/11	VG121511

CAS Number	Parameter	Conc.	Qualifier	MDL	LOQ / CRQL	Units
10061-01-5	cis-1,3-Dichloropropene	0.5	U	0.31	1	ug/L
79-00-5	1,1,2-Trichloroethane	0.5	U	0.38	1	ug/L
110-75-8	2-Chloroethyl Vinyl ether	2.5	U	1.8	5	ug/L
591-78-6	2-Hexanone	2.5	U	1.9	5	ug/L
124-48-1	Dibromochloromethane	0.5	U	0.2	1	ug/L
106-93-4	1,2-Dibromoethane	0.5	U	0.41	1	ug/L
127-18-4	Tetrachloroethene	0.5	U	0.27	1	ug/L
108-90-7	Chlorobenzene	0.5	U	0.49	1	ug/L
100-41-4	Ethyl Benzene	0.5	U	0.2	1	ug/L
179601-23-1	m/p-Xylenes	1	U	0.95	2	ug/L
95-47-6	o-Xylene	0.5	U	0.43	1	ug/L
100-42-5	Styrene	0.5	U	0.36	1	ug/L
75-25-2	Bromoform	0.5	U	0.47	1	ug/L
98-82-8	Isopropylbenzene	0.5	U	0.45	1	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	0.5	U	0.31	1	ug/L
541-73-1	1,3-Dichlorobenzene	0.5	U	0.43	1	ug/L
106-46-7	1,4-Dichlorobenzene	0.5	U	0.32	1	ug/L
95-50-1	1,2-Dichlorobenzene	0.5	U	0.45	1	ug/L
96-12-8	1,2-Dibromo-3-Chloropropane	0.5	U	0.46	1	ug/L
120-82-1	1,2,4-Trichlorobenzene	0.5	U	0.2	1	ug/L
87-61-6	1,2,3-Trichlorobenzene	0.5	U	0.2	1	ug/L
123-91-1	1,4-Dioxane	10	U	20	20	ug/L
SURROGATES						
17060-07-0	1,2-Dichloroethane-d4	51.6		70 - 120	103%	SPK: 50
1868-53-7	Dibromofluoromethane	47.2		85 - 115	94%	SPK: 50
2037-26-5	Toluene-d8	46		85 - 120	92%	SPK: 50
460-00-4	4-Bromofluorobenzene	57.6		75 - 120	115%	SPK: 50
INTERNAL STANDARDS						
363-72-4	Pentafluorobenzene	501832	3.9			
540-36-3	1,4-Difluorobenzene	967045	4.72			
3114-55-4	Chlorobenzene-d5	592828	9.69			
3855-82-1	1,4-Dichlorobenzene-d4	288173	13.4			

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Hit Summary Sheet
SW-846

SDG No.: C4998

Client: Tetra Tech NUS, Inc.

Sample ID	Client ID		Parameter	Concentration	C	RDL	MDL	Units
Client ID:	**FT-DUP01-20111213**							
C4998-18	FT-DUP01-20111213	WATER	cis-1,2-Dichloroethene	0.63	J	1.0	0.35	ug/L
			Total Voc :		**0.63**			
			Total Concentration:		**0.63**			
Client ID:	**FT-DUP02-20111214**							
C4998-19	FT-DUP02-20111214	WATER	Chloromethane	0.93	J	1.0	0.20	ug/L
C4998-19	FT-DUP02-20111214	WATER	Chloroform	0.69	J	1.0	0.34	ug/L
			Total Voc :		**1.62**			
			Total Concentration:		**1.62**			
Client ID:	**FT-FB01-20111213**							
C4998-06	FT-FB01-20111213	WATER	Chloroform	1.10		1.0	0.34	ug/L
C4998-06	FT-FB01-20111213	WATER	Bromodichloromethane	1.90		1.0	0.36	ug/L
C4998-06	FT-FB01-20111213	WATER	Dibromochloromethane	4.50		1.0	0.20	ug/L
			Total Voc :		**7.50**			
			Total Concentration:		**7.50**			
Client ID:	**FT-FB01-20111213RE**							
C4998-06RE	FT-FB01-20111213RE	WATER	Chloroform	0.85	J	1.0	0.34	ug/L
C4998-06RE	FT-FB01-20111213RE	WATER	Bromodichloromethane	1.80		1.0	0.36	ug/L
C4998-06RE	FT-FB01-20111213RE	WATER	Dibromochloromethane	4.40		1.0	0.20	ug/L
			Total Voc :		**7.05**			
			Total Concentration:		**7.05**			
Client ID:	**FT-GW437-2125**							
C4998-14	FT-GW437-2125	WATER	Chloromethane	0.57	J	1.0	0.20	ug/L
C4998-14	FT-GW437-2125	WATER	Trichloroethene	1.30		1.0	0.28	ug/L
			Total Voc :		**1.87**			
			Total Concentration:		**1.87**			
Client ID:	**FT-GW437-3135**							
C4998-15	FT-GW437-3135	WATER	Chloromethane	0.52	J	1.0	0.20	ug/L
			Total Voc :		**0.52**			
			Total Concentration:		**0.52**			
Client ID:	**FT-GW437-4145**							
C4998-16	FT-GW437-4145	WATER	Chloromethane	0.47	J	1.0	0.20	ug/L
			Total Voc :		**0.47**			
			Total Concentration:		**0.47**			
Client ID:	**FT-GW437-5155**							
C4998-17	FT-GW437-5155	WATER	Chloroform	0.66	J	1.0	0.34	ug/L
			Total Voc :		**0.66**			
			Total Concentration:		**0.66**			
Client ID:	**FT-GW438-2125**							
C4998-11	FT-GW438-2125	WATER	Chloromethane	0.67	J	1.0	0.20	ug/L
			Total Voc :		**0.67**			
			Total Concentration:		**0.67**			
Client ID:	**FT-GW438-3135**							

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Hit Summary Sheet
SW-846

SDG No.: C4998

Client: Tetra Tech NUS, Inc.

Sample ID	Client ID		Parameter	Concentration	C	RDL	MDL	Units
C4998-08	FT-GW438-3135	WATER	Chloromethane	0.80	J	1.0	0.20	ug/L
			Total Voc :		**0.80**			
			Total Concentration:		**0.80**			
Client ID:	**FT-GW438-4145**							
C4998-12	FT-GW438-4145	WATER	Chloromethane	1.40		1.0	0.20	ug/L
			Total Voc :		**1.40**			
			Total Concentration:		**1.40**			
Client ID:	**FT-GW438-5155**							
C4998-13	FT-GW438-5155	WATER	Chloromethane	0.48	J	1.0	0.20	ug/L
C4998-13	FT-GW438-5155	WATER	Chloroform	0.87	J	1.0	0.34	ug/L
			Total Voc :		**1.35**			
			Total Concentration:		**1.35**			
Client ID:	**FT-GW438-5155RE**							
C4998-13RE	FT-GW438-5155RE	WATER	Chloroform	0.59	J	1.0	0.34	ug/L
			Total Voc :		**0.59**			
			Total Concentration:		**0.59**			
Client ID:	**FT-GW439-2125**							
C4998-02	FT-GW439-2125	WATER	Chloromethane	0.62	J	1.0	0.20	ug/L
			Total Voc :		**0.62**			
			Total Concentration:		**0.62**			
Client ID:	**FT-GW439-3135**							
C4998-03	FT-GW439-3135	WATER	Acetone	1.30	J	5.0	0.50	ug/L
C4998-03	FT-GW439-3135	WATER	1,1-Dichloroethane	1.30		1.0	0.36	ug/L
C4998-03	FT-GW439-3135	WATER	cis-1,2-Dichloroethene	0.71	J	1.0	0.35	ug/L
			Total Voc :		**3.31**			
			Total Concentration:		**3.31**			
Client ID:	**FT-GW439-4145**							
C4998-04	FT-GW439-4145	WATER	Chloromethane	1.30		1.0	0.20	ug/L
C4998-04	FT-GW439-4145	WATER	Carbon Disulfide	0.73	J	1.0	0.20	ug/L
C4998-04	FT-GW439-4145	WATER	1,1-Dichloroethane	0.63	J	1.0	0.36	ug/L
			Total Voc :		**2.66**			
			Total Concentration:		**2.66**			
Client ID:	**FT-GW440-3135**							
C4998-21	FT-GW440-3135	WATER	Acetone	1.20	J	5.0	0.50	ug/L
C4998-21	FT-GW440-3135	WATER	Chloroform	0.77	J	1.0	0.34	ug/L
			Total Voc :		**1.97**			
			Total Concentration:		**1.97**			
Client ID:	**FT-GW440-4145**							
C4998-22	FT-GW440-4145	WATER	Chloroform	0.78	J	1.0	0.34	ug/L
			Total Voc :		**0.78**			
			Total Concentration:		**0.78**			
Client ID:	**FT-GW440-4145RE**							
C4998-22RE	FT-GW440-4145RE	WATER	Chloroform	0.73	J	1.0	0.34	ug/L

CHEMTECH

Hit Summary Sheet
SW-846

SDG No.: **C4998**

Client: **Tetra Tech NUS, Inc.**

Sample ID	Client ID		Parameter	Concentration	C	RDL	MDL	Units
			Total Voc :		**0.73**			
			Total Concentration:		**0.73**			
Client ID:	**FT-GW440-5155**							
C4998-23	FT-GW440-5155	WATER	Chloroform	0.76	J	1.0	0.34	ug/L
C4998-23	FT-GW440-5155	WATER	Toluene	0.41	J	1.0	0.37	ug/L
			Total Voc :		**1.17**			
			Total Concentration:		**1.17**			

APPENDIX F

VALIDATION FORMS

VALIDATION FORMS – MONITORING WELLS

INCLUDED IN DATA SUMMARY REPORT FOR 2011 GROUNDWATER INVESTIGATION ACTIVITIES

Tetra Tech NUS **INTERNAL CORRESPONDENCE**

TO:	**D. BRAYACK**	**DATE:**	**JUNE 13, 2011**
FROM:	**JOSEPH KALINYAK**	**COPIES:**	**DV FILE**
SUBJECT:	**ORGANIC DATA VALIDATION – VOC NWIRP CALVERTON CTO WE08 SDG C1833**		
SAMPLES:	5 / Aqueous / VOC		

FT-GW423-2125	FT-GW423-3135	FT-GW423-4145
FT-GW423-5155	FT-TB01-20110408	

Overview

The sample set for NWIRP Calverton, SDG C1833 consisted of four (4) aqueous environmental samples and one (1) aqueous trip blank sample. All aqueous samples were analyzed for volatile organic compounds (VOC). No field duplicate sample pairs were included in this Sample Delivery Group (SDG).

The samples were collected by Tetra Tech on April 8, 2011 and analyzed by ChemTech laboratory. All analyses were conducted in accordance with EPA Method SW-846 8260B analytical and reporting protocols. The data contained in this SDG were validated with regard to the following parameters:

*	•	Data completeness
*	•	Hold times
*	•	GC/MS System Tuning and Performance
	•	Initial/continuing calibrations
*	•	Laboratory Control Sample Recoveries
*	•	Blank Results
*	•	Surrogate Spike Recoveries
*	•	Internal Standard Recoveries
*	•	Compound Identification
*	•	Compound Quantitation
*	•	Detection Limits

The symbol (*) indicates that all quality control criteria were met for this parameter. Qualified analytical results are presented in Appendix A, results as reported by the laboratory are presented in Appendix B, Region II data validation forms are presented in Appendix C, and documentation supporting these findings is presented in Appendix D.

VOC

The initial calibration relative response factor (RRF) was less than the quality control limit of 0.05 for 1,4-dioxane and acetone for the instrument MSVOAG on 04/11/11. Additionally, the continuing calibration verification (CCV) had an RRF less than the 0.05 quality control limit for 1,4-dioxane. All sample 1,4-dioxane results were non-detected and were qualified rejected, (UR).

Positive results below the limit of detection (LOD) and above the detection limit were qualified as estimated, (J), due to uncertainty near the detection limit.

Additional Comments

Fifty-two (52) analytes were reported for VOCs.

EXECUTIVE SUMMARY

Laboratory Performance Issues: All sample 1,4-dioxane VOC analyte results were rejected due initial and continuing calibration RRF quality control limit non-compliances.

Other Factors Affecting Data Quality: Positive results below the Limit of Detection (LOD) and above the detection limit were qualified as estimated, (J), due to uncertainty near the detection limit.

The data for these analyses were reviewed with reference to the USEPA Region II Hazardous Waste Support Branch Validating Volatile Organic Compounds by Gas Chromatography/Mass Spectrometry SW-846 Method 8260B SOP #HW-24 Revision #2 August 2008 and the Department of Defense (DoD) document entitled "Quality Systems Manual (QSM) for Environmental Laboratories" (April 2009).

TetraTech NUS
Joseph Kalinyak
Chemist/Data Validator

TetraTech NUS
Joseph A. Samchuck
Data Validation Quality Assurance Officer

Attachments:
Appendix A - Qualified Analytical Results
Appendix B - Results as Reported by the Laboratory
Appendix C – Region II Data Validation Forms
Appendix D - Support Documentation

Appendix A

Qualified Analytical Results

Value Qualifier Key (Val Qual)

J – The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.

UJ – The result is an estimated non-detected quantity. The associated numerical value is the approximate concentration of the analyte in the sample.

U - Value is a non-detect as reported by the laboratory.

UR – Non-detected result is considered rejected, (UR), as a result of technical non-compliances.

DATA QUALIFICATION CODE (QUAL CODE)

A = Lab Blank Contamination
B = Field Blank Contamination
C = Calibration Noncompliance (e.g. % RSDs, %Ds, ICVs, CCVs, RRFs, etc.)
C01 = GC/MS Tuning Noncompliance
D = MS/MSD Recovery Noncompliance
E = LCS/LCSD Recovery Noncompliance
F = Lab Duplicate Imprecision
G = Field Duplicate Imprecision
H = Holding Time Exceedance
I = ICP Serial Dilution Noncompliance
J = GFAA PDS - GFAA MSA's $r < 0.995$ / ICP PDS Recovery Noncompliance
K = ICP Interference - includes ICS % R Noncompliance
L = Instrument Calibration Range Exceedance
M = Sample Preservation Noncompliance
N = Internal Standard Noncompliance
N01 = Internal Standard Recovery Noncompliance Dioxins
N02 = Recovery Standard Noncompliance Dioxins
N03 = Clean-up Standard Noncompliance Dioxins
O = Poor Instrument Performance (e.g. base-line drifting)
P = Uncertainty near detection limit (< 2 x IDL for inorganics and <CRQL for organics)
Q = Other problems (can encompass a number of issues; e.g. chromatography,interferences, etc.)
R = Surrogates Recovery Noncompliance
S = Pesticide/PCB Resolution
T = % Breakdown Noncompliance for DDT and Endrin
U = % Difference between columns/detectors >25% for positive results determined via GC/HPLC
V = Non-linear calibrations; correlation coefficent $r < 0.995$
W = EMPC result
X = Signal to noise response drop
Y = Percent solids <30%
Z = Uncertainty at 2 sigma deviation is greater than sample activity

PROJ_NO: 02045	NSAMPLE	FT-GW423-2125			FT-GW423-3135			FT-GW423-4145			FT-GW423-5155		
SDG: C1833	LAB_ID	C1833-02			C1833-03			C1833-04			C1833-05		
FRACTION: OV	SAMP_DATE	4/8/2011			4/8/2011			4/8/2011			4/8/2011		
MEDIA: WATER	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS												
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,1,1-TRICHLOROETHANE		0.5	U		0.5	U		0.5	U		0.5	U	
1,1,2,2-TETRACHLOROETHANE		0.5	U		0.5	U		0.5	U		0.5	U	
1,1,2-TRICHLOROETHANE		0.5	U		0.5	U		0.5	U		0.5	U	
1,1,2-TRICHLOROTRIFLUOROETHANE		0.5	U		0.5	U		0.5	U		0.5	U	
1,1-DICHLOROETHANE		0.5	U		0.5	U		0.5	U		0.5	U	
1,1-DICHLOROETHENE		0.5	U		0.5	U		0.5	U		0.5	U	
1,2,3-TRICHLOROBENZENE		0.5	U		0.5	U		0.5	U		0.5	U	
1,2,4-TRICHLOROBENZENE		0.5	U		0.5	U		0.5	U		0.5	U	
1,2-DIBROMO-3-CHLOROPROPANE		0.5	U		0.5	U		0.5	U		0.5	U	
1,2-DIBROMOETHANE		0.5	U		0.5	U		0.5	U		0.5	U	
1,2-DICHLOROBENZENE		0.5	U		0.5	U		0.5	U		0.5	U	
1,2-DICHLOROETHANE		0.5	U		0.5	U		0.5	U		0.5	U	
1,2-DICHLOROPROPANE		0.5	U		0.5	U		0.5	U		0.5	U	
1,3-DICHLOROBENZENE		0.5	U		0.5	U		0.5	U		0.5	U	
1,4-DICHLOROBENZENE		0.5	U		0.5	U		0.5	U		0.5	U	
1,4-DIOXANE		10	UR	C	10	UR	C	10	UR	C	10	UR	C
2-BUTANONE		2.5	U		2.5	U		2.5	U		2.5	U	
2-HEXANONE		2.5	U		2.5	U		2.5	U		2.5	U	
4-METHYL-2-PENTANONE		2.5	U		2.5	U		2.5	U		2.5	U	
ACETONE		2.5	U		2.5	U		2.5	U		2.7	J	P
BENZENE		0.5	U		0.5	U		0.5	U		0.5	U	
BROMOCHLOROMETHANE		0.5	U		0.5	U		0.5	U		0.5	U	
BROMODICHLOROMETHANE		0.5	U		0.5	U		0.5	U		0.5	U	
BROMOFORM		0.5	U		0.5	U		0.5	U		0.5	U	
BROMOMETHANE		0.5	U		0.5	U		0.5	U		0.5	U	
CARBON DISULFIDE		0.5	U		0.5	U		0.5	U		0.5	U	
CARBON TETRACHLORIDE		0.5	U		0.5	U		0.5	U		0.5	U	
CHLOROBENZENE		0.5	U		0.5	U		0.5	U		0.5	U	
CHLORODIBROMOMETHANE		0.5	U		0.5	U		0.5	U		0.5	U	
CHLOROETHANE		0.5	U		0.5	U		0.5	U		0.5	U	
CHLOROFORM		0.5	U		0.5	U		0.5	U		0.63	J	P
CHLOROMETHANE		0.5	U		0.5	U		0.5	U		0.5	U	
CIS-1,2-DICHLOROETHENE		0.5	U		0.5	U		0.5	U		0.5	U	
CIS-1,3-DICHLOROPROPENE		0.5	U		0.5	U		0.5	U		0.5	U	
CYCLOHEXANE		0.5	U		0.5	U		0.5	U		0.5	U	

PROJ_NO: 02045	NSAMPLE	FT-TB01-20110408		
SDG: C1833	LAB_ID	C1833-01		
FRACTION: OV	SAMP_DATE	4/8/2011		
MEDIA: WATER	QC_TYPE	NM		
	UNITS	UG/L		
	PCT_SOLIDS			
	DUP_OF			
PARAMETER		RESULT	VQL	QLCD
1,1,1-TRICHLOROETHANE		0.5	U	
1,1,2,2-TETRACHLOROETHANE		0.5	U	
1,1,2-TRICHLOROETHANE		0.5	U	
1,1,2-TRICHLOROTRIFLUOROETHANE		0.5	U	
1,1-DICHLOROETHANE		0.5	U	
1,1-DICHLOROETHENE		0.5	U	
1,2,3-TRICHLOROBENZENE		0.5	U	
1,2,4-TRICHLOROBENZENE		0.5	U	
1,2-DIBROMO-3-CHLOROPROPANE		0.5	U	
1,2-DIBROMOETHANE		0.5	U	
1,2-DICHLOROBENZENE		0.5	U	
1,2-DICHLOROETHANE		0.5	U	
1,2-DICHLOROPROPANE		0.5	U	
1,3-DICHLOROBENZENE		0.5	U	
1,4-DICHLOROBENZENE		0.5	U	
1,4-DIOXANE		10	UR	C
2-BUTANONE		2.5	U	
2-HEXANONE		2.5	U	
4-METHYL-2-PENTANONE		2.5	U	
ACETONE		2.5	U	
BENZENE		0.5	U	
BROMOCHLOROMETHANE		0.5	U	
BROMODICHLOROMETHANE		0.5	U	
BROMOFORM		0.5	U	
BROMOMETHANE		0.5	U	
CARBON DISULFIDE		0.5	U	
CARBON TETRACHLORIDE		0.5	U	
CHLOROBENZENE		0.5	U	
CHLORODIBROMOMETHANE		0.5	U	
CHLOROETHANE		0.5	U	
CHLOROFORM		0.5	U	
CHLOROMETHANE		0.5	U	
CIS-1,2-DICHLOROETHENE		0.5	U	
CIS-1,3-DICHLOROPROPENE		0.5	U	
CYCLOHEXANE		0.5	U	

PROJ_NO: 02045	NSAMPLE	FT-GW423-2125			FT-GW423-3135			FT-GW423-4145			FT-GW423-5155		
SDG: C1833	LAB_ID	C1833-02			C1833-03			C1833-04			C1833-05		
FRACTION: OV	SAMP_DATE	4/8/2011			4/8/2011			4/8/2011			4/8/2011		
MEDIA: WATER	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS												
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
DICHLORODIFLUOROMETHANE		0.5	U		0.5	U		0.5	U		0.5	U	
ETHYLBENZENE		0.5	U		0.5	U		0.5	U		0.5	U	
ISOPROPYLBENZENE		0.5	U		0.5	U		0.5	U		0.5	U	
M+P-XYLENES		1	U		1	U		1	U		1	U	
METHYL ACETATE		0.5	U		0.5	U		0.5	U		0.5	U	
METHYL CYCLOHEXANE		0.5	U		0.5	U		0.5	U		0.5	U	
METHYL TERT-BUTYL ETHER		0.5	U		0.5	U		0.5	U		0.5	U	
METHYLENE CHLORIDE		0.5	U		0.5	U		0.5	U		0.5	U	
O-XYLENE		0.5	U		0.5	U		0.5	U		0.5	U	
STYRENE		0.5	U		0.5	U		0.5	U		0.5	U	
TETRACHLOROETHENE		0.5	U		0.5	U		0.5	U		0.5	U	
TOLUENE		0.5	U		0.5	U		0.5	U		0.5	U	
TRANS-1,2-DICHLOROETHENE		0.5	U		0.5	U		0.5	U		0.5	U	
TRANS-1,3-DICHLOROPROPENE		0.5	U		0.5	U		0.5	U		0.5	U	
TRICHLOROETHENE		0.5	U		0.5	U		0.5	U		0.5	U	
TRICHLOROFLUOROMETHANE		0.5	U		0.5	U		0.5	U		0.5	U	
VINYL CHLORIDE		0.5	U		0.5	U		0.5	U		0.5	U	

PROJ_NO: 02045	NSAMPLE	FT-TB01-20110408		
SDG: C1833	LAB_ID	C1833-01		
FRACTION: OV	SAMP_DATE	4/8/2011		
MEDIA: WATER	QC_TYPE	NM		
	UNITS	UG/L		
	PCT_SOLIDS			
	DUP_OF			
PARAMETER		RESULT	VQL	QLCD
DICHLORODIFLUOROMETHANE		0.5	U	
ETHYLBENZENE		0.5	U	
ISOPROPYLBENZENE		0.5	U	
M+P-XYLENES		1	U	
METHYL ACETATE		0.5	U	
METHYL CYCLOHEXANE		0.5	U	
METHYL TERT-BUTYL ETHER		0.5	U	
METHYLENE CHLORIDE		0.5	U	
O-XYLENE		0.5	U	
STYRENE		0.5	U	
TETRACHLOROETHENE		0.5	U	
TOLUENE		0.5	U	
TRANS-1,2-DICHLOROETHENE		0.5	U	
TRANS-1,3-DICHLOROPROPENE		0.5	U	
TRICHLOROETHENE		0.5	U	
TRICHLOROFLUOROMETHANE		0.5	U	
VINYL CHLORIDE		0.5	U	

Tetra Tech NUS **INTERNAL CORRESPONDENCE**

TO:	**D. BRAYACK**	**DATE:**	**AUGUST 4, 2011**
FROM:	**EDWARD SEDLMYER**	**COPIES:**	**DV FILE**
SUBJECT:	**ORGANIC DATA VALIDATION – VOC NWIRP CALVERTON CTO WE08 SDG C2735**		

SAMPLES: 20 / Aqueous / VOC

FT-DUP01-20110613	FT-GW424-2125	FT-GW425-2125
FT-GW425-3135	FT-GW425-4145	FT-GW425-5155
FT-GW425-6165	FT-GW426-2125	FT-GW426-3135
FT-GW426-4145	FT-GW426-5155	FT-GW426-6165
FT-GW427-2125	FT-GW427-3135	FT-GW427-4145
FT-GW427-5155	FT-GW427-6165	FT-RB01-20110613
FT-SB01-20110614	FT-TB01-20110613	

Overview

The sample set for NWIRP Calverton, CTO WE08, SDG C2735 consists of twenty (20) aqueous environmental samples. The aqueous samples were analyzed for volatile organic compounds (VOC). The following field duplicate pair was associated with this SDG: FT-GW426-4145 / FT-DUP01-20110613.

The samples were collected by Tetra Tech on June 13, 14. and 15, 2011 and analyzed by CHEMTECH. All analyses were conducted in accordance with EPA Method SW-846 8260B analytical and reporting protocols. The data contained in this SDG were validated with regard to the following parameters:

* • Data completeness
* • Holding times
• Initial/continuing calibrations
* • GC/MS Tuning
* • Laboratory Method Blank Results
• Surrogate Recoveries
• Matrix Spike / Matrix Spike Duplicate Recoveries
* • Laboratory Control Sample Recoveries
* • Field Duplicate Results
* • Internal Standard Recoveries
* • Compound Quantitation
* • Compound Identification
* • Detection Limits

The symbol (*) indicates that all quality control criteria were met for this parameter. Qualified analytical results are presented in Appendix A, results as reported by the laboratory are presented in Appendix B, Region II data validation forms are presented in Appendix C, and documentation supporting these findings is presented in Appendix D.

Volatile Organic Compounds

The initial calibration analyzed on 06/19/11 and all associated continuing calibrations relative response

factor (RRF) was less than the 0.05 quality control limit for 1,4-dioxane on instrument MSVOAG. The non-detected results for 1,4-dioxane were rejected (UR).

Continuing calibration percent differences (%Ds) were greater than the 20% quality control limit for dichlorodifluoromethane and tetrachloroethene on instrument MSVOAG, on 06/20/11 at 2:48. The nondetected results for the aforementioned compounds in samples FT-GW427-2125, FT-GW427-4145, FT-RB01-20110613, FT-GW427-5155, FT-GW427-6165, FT-GW426-2125, FT-GW426-3135, FT-DUP01-20110613, FT-GW426-6165, FT-SB01-20110614, FT-GW425-2125, and FT-GW425-3135 were qualified as estimated (UJ).

Continuing calibration percent drift (%D) was greater than the 20% quality control limit for chloroethane on instrument MSVOAG, on 06/20/11 at 15:05. The nondetected results for the aforementioned compounds in samples FT-GW426-5155, FT-GW425-5155, FT-GW425-6165, FT-GW424-2125, FT-GW427-3135, and FT-GW426-4145 were qualified as estimated (UJ).

Continuing calibration percent drift (%D) was greater than the 20% quality control limit for bromoform on instrument MSVOAG, on 06/21/11 at 11:48. The positive result for bromoform in sample FT-GW425-4145 was qualified as estimated (J).

The surrogate toluene-d8 had percent recoveries less than the quality control limit for samples FT-GW427-2125, FT-GW426-3135, and FT-GW426-6165. The samples were reanalyzed with similar results. The positive and nondetected results for the aforementioned samples were qualified as estimated (J) and (UJ), respectively.

The VOC matrix spike / matrix spike duplicate (MS/MSD) performed on sample FT-GW426-5155 had percent recoveries less than the lower quality control limit for bromoform in the MS/MSD and a relative percent difference (RPD) for carbon disulfide that exceeded the quality control limit. The nondetected bromoform result for sample FT-GW426-5155 was qualified as estimated (UJ). No action was taken on the carbon disulfide result because the MS and MSD had acceptable recoveries.

Additional Comments

The results were reported to the limit of detection (LOD). Positive results below the limit of quantitation (LOQ) and above the detection limit (DL) were qualified as estimated, (J), due to uncertainty near the detection limit.

EXECUTIVE SUMMARY

Laboratory Performance Issues: Initial and continuing calibration RRF noncompliance resulted in the rejection of 1,4-dioxane results. Calibration percent difference noncompliances resulted in qualification of the data. Surrogate percent recovery noncompliances resulted in the qualification of results for nine samples. MS/MSD percent recovery noncompliance resulted in the qualification of bromform result in one sample.

Other Factors Affecting Data Quality: Positive results below the limit of quantitation (LOQ) and above the detection limit (DL) were qualified as estimated, (J), due to uncertainty near the detection limit.

The data for these analyses were reviewed with reference to the USEPA Region II Standard Operating Procedures for Validating Volatile Organic Compounds by SW-846 Method 8260B HW-24 Revision #2 (August 2008) and the Department of Defense (DoD) document entitled "Quality Systems Manual (QSM) for Environmental Laboratories" (April 2009).

The text of this report has been formulated to address only those problem areas affecting data quality.

TetraTech NUS
Edward Sedlmyer
Chemist/Data Validator

TetraTech NUS
Joseph A. Samchuck
Data Validation Quality Assurance Officer

Attachments:
1. Appendix A - Qualified Analytical Results
2. Appendix B - Results as Reported by the Laboratory
3. Appendix C – Region II Data Validation Forms
4. Appendix D - Support Documentation

Appendix A

Qualified Analytical Results

Data Validation Qualifier Codes:

A = Lab Blank Contamination
B = Field Blank Contamination
C = Calibration Noncompliance (e.g. % RSDs, %Ds, ICVs, CCVs, RRFs, etc.)
C01 = GC/MS Tuning Noncompliance
D = MS/MSD Recovery Noncompliance
E = LCS/LCSD Recovery Noncompliance
F = Lab Duplicate Imprecision
G = Field Duplicate Imprecision
H = Holding Time Exceedance
I = ICP Serial Dilution Noncompliance
J = GFAA PDS - GFAA MSA's $r < 0.995$ / ICP PDS Recovery Noncompliance
K = ICP Interference - includes ICS % R Noncompliance
L = Instrument Calibration Range Exceedance
M = Sample Preservation Noncompliance
N = Internal Standard Noncompliance
N01 = Internal Standard Recovery Noncompliance Dioxins
N02 = Recovery Standard Noncompliance Dioxins
N03 = Clean-up Standard Noncompliance Dioxins
O = Poor Instrument Performance (e.g. base-line drifting)
P = Uncertainty near detection limit (< 2 x IDL for inorganics and <CRQL for organics)
Q = Other problems (can encompass a number of issues; e.g. chromatography,interferences, etc.)
R = Surrogates Recovery Noncompliance
S = Pesticide/PCB Resolution
T = % Breakdown Noncompliance for DDT and Endrin
U = % Difference between columns/detectors >25% for positive results determined via GC/HPLC
V = Non-linear calibrations; correlation coefficient $r < 0.995$
W = EMPC result
X = Signal to noise response drop
Y = Percent solids <30%
Z = Uncertainty at 2 sigma deviation is greater than sample activity

PROJ_NO: 02045	NSAMPLE	FT-DUP01-20110613			FT-GW424-2125			FT-GW425-2125			FT-GW425-3135		
SDG: C2735	LAB_ID	C2735-11			C2735-22			C2735-17			C2735-18		
FRACTION: OV	SAMP_DATE	6/13/2011			6/15/2011			6/14/2011			6/14/2011		
MEDIA: WATER	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF	FT-GW426-4145											
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,1,1-TRICHLOROETHANE		0.5	U		0.5	U		0.5	U		0.5	U	
1,1,2,2-TETRACHLOROETHANE		0.5	U		0.5	U		0.5	U		0.5	U	
1,1,2-TRICHLOROETHANE		0.5	U		0.5	U		0.5	U		0.5	U	
1,1,2-TRICHLOROTRIFLUOROETHANE		0.5	U		0.5	U		0.5	U		0.5	U	
1,1-DICHLOROETHANE		0.5	U		0.5	U		0.5	U		0.9	J	P
1,1-DICHLOROETHENE		0.5	U		0.5	U		0.5	U		0.5	U	
1,2,3-TRICHLOROBENZENE		0.5	U		0.5	U		0.5	U		0.5	U	
1,2,4-TRICHLOROBENZENE		0.5	U		0.5	U		0.5	U		0.5	U	
1,2-DIBROMO-3-CHLOROPROPANE		0.5	U		0.5	U		0.5	U		0.5	U	
1,2-DIBROMOETHANE		0.5	U		0.5	U		0.5	U		0.5	U	
1,2-DICHLOROBENZENE		0.5	U		0.5	U		0.5	U		0.5	U	
1,2-DICHLOROETHANE		0.5	U		0.5	U		0.5	U		0.5	U	
1,2-DICHLOROPROPANE		0.5	U		0.5	U		0.5	U		0.5	U	
1,3-DICHLOROBENZENE		0.5	U		0.5	U		0.5	U		0.5	U	
1,4-DICHLOROBENZENE		0.5	U		0.5	U		0.5	U		0.5	U	
1,4-DIOXANE		10	UR	C	10	UR	C	10	UR	C	10	UR	C
2-BUTANONE		2.5	U		2.5	U		2.5	U		2.5	U	
2-HEXANONE		2.5	U		2.5	U		2.5	U		2.5	U	
4-METHYL-2-PENTANONE		2.5	U		2.5	U		2.5	U		2.5	U	
ACETONE		2.5	U		2.5	U		2.5	U		2.5	U	
BENZENE		0.5	U		0.5	U		0.5	U		0.5	U	
BROMOCHLOROMETHANE		0.5	U		0.5	U		0.5	U		0.5	U	
BROMODICHLOROMETHANE		0.5	U		0.5	U		0.5	U		0.5	U	
BROMOFORM		0.5	U		0.5	U		0.5	U		0.5	U	
BROMOMETHANE		0.5	U		0.5	U		0.5	U		0.5	U	
CARBON DISULFIDE		0.5	U		0.5	U		0.5	U		0.5	U	
CARBON TETRACHLORIDE		0.5	U		0.5	U		0.5	U		0.5	U	
CHLOROBENZENE		0.5	U		0.5	U		0.5	U		0.5	U	
CHLORODIBROMOMETHANE		0.5	U		0.5	U		0.5	U		0.5	U	
CHLOROETHANE		0.5	U		0.5	UJ	C	0.51	J	P	0.5	U	
CHLOROFORM		0.55	J	P	0.5	U		0.5	U		0.5	U	
CHLOROMETHANE		0.5	U		0.5	U		0.77	J	P	0.61	J	P
CIS-1,2-DICHLOROETHENE		0.5	U		0.5	U		0.5	U		0.5	U	
CIS-1,3-DICHLOROPROPENE		0.5	U		0.5	U		0.5	U		0.5	U	
CYCLOHEXANE		0.5	U		0.5	U		0.5	U		0.5	U	

PROJ_NO: 02045	NSAMPLE	FT-GW425-4145			FT-GW425-5155			FT-GW425-6165			FT-GW426-2125		
SDG: C2735	LAB_ID	C2735-19			C2735-20			C2735-21			C2735-08		
FRACTION: OV	SAMP_DATE	6/14/2011			6/14/2011			6/14/2011			6/13/2011		
MEDIA: WATER	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,1,1-TRICHLOROETHANE		0.5	U		0.5	U		0.5	U		0.5	U	
1,1,2,2-TETRACHLOROETHANE		0.5	U		0.5	U		0.5	U		0.5	U	
1,1,2-TRICHLOROETHANE		0.5	U		0.5	U		0.5	U		0.5	U	
1,1,2-TRICHLOROTRIFLUOROETHANE		0.5	U		0.5	U		0.5	U		0.5	U	
1,1-DICHLOROETHANE		0.5	U		0.5	U		0.5	U		0.5	U	
1,1-DICHLOROETHENE		0.5	U		0.5	U		0.5	U		0.5	U	
1,2,3-TRICHLOROBENZENE		0.5	U		0.5	U		0.5	U		0.5	U	
1,2,4-TRICHLOROBENZENE		0.5	U		0.5	U		0.5	U		0.5	U	
1,2-DIBROMO-3-CHLOROPROPANE		0.5	U		0.5	U		0.5	U		0.5	U	
1,2-DIBROMOETHANE		0.5	U		0.5	U		0.5	U		0.5	U	
1,2-DICHLOROBENZENE		0.5	U		0.5	U		0.5	U		0.5	U	
1,2-DICHLOROETHANE		0.5	U		0.5	U		0.5	U		0.5	U	
1,2-DICHLOROPROPANE		0.5	U		0.5	U		0.5	U		0.5	U	
1,3-DICHLOROBENZENE		0.5	U		0.5	U		0.5	U		0.5	U	
1,4-DICHLOROBENZENE		0.5	U		0.5	U		0.5	U		0.5	U	
1,4-DIOXANE		10	UR	C	10	UR	C	10	UR	C	10	UR	C
2-BUTANONE		2.5	U		2.5	U		2.5	U		2.5	U	
2-HEXANONE		2.5	U		2.5	U		2.5	U		2.5	U	
4-METHYL-2-PENTANONE		2.5	U		2.5	U		2.5	U		2.5	U	
ACETONE		2.5	U		2.5	U		2.5	U		2.5	U	
BENZENE		0.5	U		0.5	U		0.5	U		0.5	U	
BROMOCHLOROMETHANE		0.5	U		0.5	U		0.5	U		0.5	U	
BROMODICHLOROMETHANE		0.5	U		0.5	U		0.5	U		0.5	U	
BROMOFORM		2.6	J	C	0.5	U		0.5	U		0.5	U	
BROMOMETHANE		0.5	U		0.5	U		0.5	U		0.5	U	
CARBON DISULFIDE		0.5	U		0.5	U		0.5	U		0.5	U	
CARBON TETRACHLORIDE		0.5	U		0.5	U		0.5	U		0.5	U	
CHLOROBENZENE		0.5	U		0.5	U		0.5	U		0.5	U	
CHLORODIBROMOMETHANE		0.5	U		0.5	U		0.5	U		0.5	U	
CHLOROETHANE		0.5	U		0.5	UJ	C	0.5	UJ	C	0.5	U	
CHLOROFORM		0.5	U		1.2			1			0.5	U	
CHLOROMETHANE		0.5	U		0.5	U		0.5	U		0.5	U	
CIS-1,2-DICHLOROETHENE		0.5	U		0.5	U		0.5	U		0.5	U	
CIS-1,3-DICHLOROPROPENE		0.5	U		0.5	U		0.5	U		0.5	U	
CYCLOHEXANE		0.5	U		0.5	U		0.5	U		0.5	U	

PROJ_NO: 02045	NSAMPLE	FT-GW426-3135			FT-GW426-4145			FT-GW426-5155			FT-GW426-6165		
SDG: C2735	LAB_ID	C2735-09			C2735-10			C2735-12			C2735-15		
FRACTION: OV	SAMP_DATE	6/13/2011			6/13/2011			6/13/2011			6/13/2011		
MEDIA: WATER	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,1,1-TRICHLOROETHANE		0.5	UJ	R	0.5	U		0.5	U		0.5	UJ	R
1,1,2,2-TETRACHLOROETHANE		0.5	UJ	R	0.5	U		0.5	U		0.5	UJ	R
1,1,2-TRICHLOROETHANE		0.5	UJ	R	0.5	U		0.5	U		0.5	UJ	R
1,1,2-TRICHLOROTRIFLUOROETHANE		0.5	UJ	R	0.5	U		0.5	U		0.5	UJ	R
1,1-DICHLOROETHANE		0.5	UJ	R	0.5	U		0.5	U		0.5	UJ	R
1,1-DICHLOROETHENE		0.5	UJ	R	0.5	U		0.5	U		0.5	UJ	R
1,2,3-TRICHLOROBENZENE		0.5	UJ	R	0.5	U		0.5	U		0.5	UJ	R
1,2,4-TRICHLOROBENZENE		0.5	UJ	R	0.5	U		0.5	U		0.5	UJ	R
1,2-DIBROMO-3-CHLOROPROPANE		0.5	UJ	R	0.5	U		0.5	U		0.5	UJ	R
1,2-DIBROMOETHANE		0.5	UJ	R	0.5	U		0.5	U		0.5	UJ	R
1,2-DICHLOROBENZENE		0.5	UJ	R	0.5	U		0.5	U		0.5	UJ	R
1,2-DICHLOROETHANE		0.5	UJ	R	0.5	U		0.5	U		0.5	UJ	R
1,2-DICHLOROPROPANE		0.5	UJ	R	0.5	U		0.5	U		0.5	UJ	R
1,3-DICHLOROBENZENE		0.5	UJ	R	0.5	U		0.5	U		0.5	UJ	R
1,4-DICHLOROBENZENE		0.5	UJ	R	0.5	U		0.5	U		0.5	UJ	R
1,4-DIOXANE		10	UJ	R	10	UR	C	10	UR	C	10	UJ	R
2-BUTANONE		2.5	UJ	R	2.5	U		2.5	U		2.5	UJ	R
2-HEXANONE		2.5	UJ	R	2.5	U		2.5	U		2.5	UJ	R
4-METHYL-2-PENTANONE		2.5	UJ	R	2.5	U		2.5	U		2.5	UJ	R
ACETONE		2.5	UJ	R	2.5	U		2.5	U		2.5	UJ	R
BENZENE		0.5	UJ	R	0.5	U		0.5	U		0.5	UJ	R
BROMOCHLOROMETHANE		0.5	UJ	R	0.5	U		0.5	U		0.5	UJ	R
BROMODICHLOROMETHANE		0.5	UJ	R	0.5	U		0.5	U		0.5	UJ	R
BROMOFORM		0.5	UJ	R	0.5	U		0.5	UJ	D	0.5	UJ	R
BROMOMETHANE		0.5	UJ	R	0.5	U		0.5	U		0.5	UJ	R
CARBON DISULFIDE		0.5	UJ	R	0.5	U		0.5	U		0.5	UJ	R
CARBON TETRACHLORIDE		0.5	UJ	R	0.5	U		0.5	U		0.5	UJ	R
CHLOROBENZENE		0.5	UJ	R	0.5	U		0.5	U		0.5	UJ	R
CHLORODIBROMOMETHANE		0.5	UJ	R	0.5	U		0.5	U		0.5	UJ	R
CHLOROETHANE		0.5	UJ	R	0.5	UJ	C	0.5	UJ	C	0.5	UJ	R
CHLOROFORM		0.5	UJ	R	0.55	J	P	0.89	J	P	0.53	J	PR
CHLOROMETHANE		0.5	UJ	R	0.5	U		0.5	U		0.5	UJ	R
CIS-1,2-DICHLOROETHENE		0.5	UJ	R	0.5	U		0.5	U		0.5	UJ	R
CIS-1,3-DICHLOROPROPENE		0.5	UJ	R	0.5	U		0.5	U		0.5	UJ	R
CYCLOHEXANE		0.5	UJ	R	0.5	U		0.5	U		0.5	UJ	R

PROJ_NO: 02045	NSAMPLE	FT-GW427-2125			FT-GW427-3135			FT-GW427-4145			FT-GW427-5155		
SDG: C2735	LAB_ID	C2735-02			C2735-03			C2735-04			C2735-06		
FRACTION: OV	SAMP_DATE	6/13/2011			6/13/2011			6/13/2011			6/13/2011		
MEDIA: WATER	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,1,1-TRICHLOROETHANE		0.5	UJ	R	0.5	U		0.5	U		0.5	U	
1,1,2,2-TETRACHLOROETHANE		0.5	UJ	R	0.5	U		0.5	U		0.5	U	
1,1,2-TRICHLOROETHANE		0.5	UJ	R	0.5	U		0.5	U		0.5	U	
1,1,2-TRICHLOROTRIFLUOROETHANE		0.5	UJ	R	0.5	U		0.5	U		0.5	U	
1,1-DICHLOROETHANE		0.5	UJ	R	0.5	U		0.5	U		0.5	U	
1,1-DICHLOROETHENE		0.5	UJ	R	0.5	U		0.5	U		0.5	U	
1,2,3-TRICHLOROBENZENE		0.5	UJ	R	0.5	U		0.5	U		0.5	U	
1,2,4-TRICHLOROBENZENE		0.5	UJ	R	0.5	U		0.5	U		0.5	U	
1,2-DIBROMO-3-CHLOROPROPANE		0.5	UJ	R	0.5	U		0.5	U		0.5	U	
1,2-DIBROMOETHANE		0.5	UJ	R	0.5	U		0.5	U		0.5	U	
1,2-DICHLOROBENZENE		0.5	UJ	R	0.5	U		0.5	U		0.5	U	
1,2-DICHLOROETHANE		0.5	UJ	R	0.5	U		0.5	U		0.5	U	
1,2-DICHLOROPROPANE		0.5	UJ	R	0.5	U		0.5	U		0.5	U	
1,3-DICHLOROBENZENE		0.5	UJ	R	0.5	U		0.5	U		0.5	U	
1,4-DICHLOROBENZENE		0.5	UJ	R	0.5	U		0.5	U		0.5	U	
1,4-DIOXANE		10	UJ	R	10	UR	C	10	UR	C	10	UR	C
2-BUTANONE		2.5	UJ	R	2.5	U		2.5	U		2.5	U	
2-HEXANONE		2.5	UJ	R	2.5	U		2.5	U		2.5	U	
4-METHYL-2-PENTANONE		2.5	UJ	R	2.5	U		2.5	U		2.5	U	
ACETONE		2.5	UJ	R	2.5	U		2.5	U		2.5	U	
BENZENE		0.5	UJ	R	0.5	U		0.5	U		0.5	U	
BROMOCHLOROMETHANE		0.5	UJ	R	0.5	U		0.5	U		0.5	U	
BROMODICHLOROMETHANE		0.5	UJ	R	0.5	U		0.5	U		0.5	U	
BROMOFORM		0.5	UJ	R	0.5	U		0.5	U		0.5	U	
BROMOMETHANE		0.5	UJ	R	0.5	U		0.5	U		0.5	U	
CARBON DISULFIDE		0.5	UJ	R	0.5	U		0.5	U		0.5	U	
CARBON TETRACHLORIDE		0.5	UJ	R	0.5	U		0.5	U		0.5	U	
CHLOROBENZENE		0.5	UJ	R	0.5	U		0.5	U		0.5	U	
CHLORODIBROMOMETHANE		0.5	UJ	R	0.5	U		0.5	U		0.5	U	
CHLOROETHANE		0.5	UJ	R	0.5	UJ	C	0.5	U		0.5	U	
CHLOROFORM		0.5	UJ	R	0.5	U		0.5	U		0.5	U	
CHLOROMETHANE		0.5	UJ	R	0.5	U		0.5	U		0.5	U	
CIS-1,2-DICHLOROETHENE		0.5	UJ	R	0.5	U		0.5	U		0.5	U	
CIS-1,3-DICHLOROPROPENE		0.5	UJ	R	0.5	U		0.5	U		0.5	U	
CYCLOHEXANE		0.5	UJ	R	0.5	U		0.5	U		0.5	U	

PROJ_NO: 02045	NSAMPLE	FT-GW427-6165			FT-RB01-20110613			FT-SB01-20110614			FT-TB01-20110613		
SDG: C2735	LAB_ID	C2735-07			C2735-05			C2735-16			C2735-01		
FRACTION: OV	SAMP_DATE	6/13/2011			6/13/2011			6/14/2011			6/13/2011		
MEDIA: WATER	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,1,1-TRICHLOROETHANE		0.5	U		0.5	U		0.5	U		0.5	U	
1,1,2,2-TETRACHLOROETHANE		0.5	U		0.5	U		0.5	U		0.5	U	
1,1,2-TRICHLOROETHANE		0.5	U		0.5	U		0.5	U		0.5	U	
1,1,2-TRICHLOROTRIFLUOROETHANE		0.5	U		0.5	U		0.5	U		0.5	U	
1,1-DICHLOROETHANE		0.5	U		0.5	U		0.5	U		0.5	U	
1,1-DICHLOROETHENE		0.5	U		0.5	U		0.5	U		0.5	U	
1,2,3-TRICHLOROBENZENE		0.5	U		0.5	U		0.5	U		0.5	U	
1,2,4-TRICHLOROBENZENE		0.5	U		0.5	U		0.5	U		0.5	U	
1,2-DIBROMO-3-CHLOROPROPANE		0.5	U		0.5	U		0.5	U		0.5	U	
1,2-DIBROMOETHANE		0.5	U		0.5	U		0.5	U		0.5	U	
1,2-DICHLOROBENZENE		0.5	U		0.5	U		0.5	U		0.5	U	
1,2-DICHLOROETHANE		0.5	U		0.5	U		0.5	U		0.5	U	
1,2-DICHLOROPROPANE		0.5	U		0.5	U		0.5	U		0.5	U	
1,3-DICHLOROBENZENE		0.5	U		0.5	U		0.5	U		0.5	U	
1,4-DICHLOROBENZENE		0.5	U		0.5	U		0.5	U		0.5	U	
1,4-DIOXANE		10	UR	C	10	UR	C	10	UR	C	10	UR	C
2-BUTANONE		2.5	U		2.5	U		2.5	U		2.5	U	
2-HEXANONE		2.5	U		2.5	U		2.5	U		2.5	U	
4-METHYL-2-PENTANONE		2.5	U		2.5	U		2.5	U		2.5	U	
ACETONE		2.5	U		2.5	U		2.5	U		2.5	U	
BENZENE		0.5	U		0.5	U		0.5	U		0.5	U	
BROMOCHLOROMETHANE		0.5	U		0.5	U		0.5	U		0.5	U	
BROMODICHLOROMETHANE		0.5	U		0.5	U		0.5	U		0.5	U	
BROMOFORM		0.5	U		0.5	U		0.5	U		0.5	U	
BROMOMETHANE		0.5	U		0.5	U		0.5	U		0.5	U	
CARBON DISULFIDE		0.5	U		0.5	U		0.5	U		0.5	U	
CARBON TETRACHLORIDE		0.5	U		0.5	U		0.5	U		0.5	U	
CHLOROBENZENE		0.5	U		0.5	U		0.5	U		0.5	U	
CHLORODIBROMOMETHANE		0.5	U		0.5	U		0.64	J	P	0.5	U	
CHLOROETHANE		0.5	U		0.5	U		0.5	U		0.5	U	
CHLOROFORM		2.4			0.5	U		0.5	U		0.5	U	
CHLOROMETHANE		0.5	U		0.5	U		0.5	U		0.5	U	
CIS-1,2-DICHLOROETHENE		0.5	U		0.5	U		0.5	U		0.5	U	
CIS-1,3-DICHLOROPROPENE		0.5	U		0.5	U		0.5	U		0.5	U	
CYCLOHEXANE		0.5	U		0.5	U		0.5	U		0.5	U	

PROJ_NO: 02045	NSAMPLE	FT-DUP01-20110613			FT-GW424-2125			FT-GW425-2125			FT-GW425-3135		
SDG: C2735	LAB_ID	C2735-11			C2735-22			C2735-17			C2735-18		
FRACTION: OV	SAMP_DATE	6/13/2011			6/15/2011			6/14/2011			6/14/2011		
MEDIA: WATER	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF	FT-GW426-4145											
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
DICHLORODIFLUOROMETHANE		0.5	UJ	C	0.5	U		0.5	UJ	C	0.5	UJ	C
ETHYLBENZENE		0.5	U		0.5	U		0.5	U		0.72	J	P
ISOPROPYLBENZENE		0.5	U		0.5	U		0.5	U		0.5	U	
M+P-XYLENES		1	U		1	U		1	U		1.4	J	P
METHYL ACETATE		0.5	U		0.5	U		0.5	U		0.5	U	
METHYL CYCLOHEXANE		0.5	U		0.5	U		0.5	U		0.5	U	
METHYL TERT-BUTYL ETHER		0.5	U		0.5	U		0.5	U		0.5	U	
METHYLENE CHLORIDE		0.5	U		0.5	U		0.5	U		0.5	U	
O-XYLENE		0.5	U		0.5	U		0.5	U		2.7		
STYRENE		0.5	U		0.5	U		0.5	U		0.5	U	
TETRACHLOROETHENE		0.5	UJ	C	0.5	U		0.5	UJ	C	0.5	UJ	C
TOLUENE		0.5	U		0.5	U		0.5	U		0.5	U	
TRANS-1,2-DICHLOROETHENE		0.5	U		0.5	U		0.5	U		0.5	U	
TRANS-1,3-DICHLOROPROPENE		0.5	U		0.5	U		0.5	U		0.5	U	
TRICHLOROETHENE		0.5	U		0.5	U		0.5	U		1.3		
TRICHLOROFLUOROMETHANE		0.5	U		0.5	U		0.5	U		0.5	U	
VINYL CHLORIDE		0.5	U		0.5	U		0.5	U		0.5	U	

PROJ_NO: 02045	NSAMPLE	FT-GW425-4145			FT-GW425-5155			FT-GW425-6165			FT-GW426-2125		
SDG: C2735	LAB_ID	C2735-19			C2735-20			C2735-21			C2735-08		
FRACTION: OV	SAMP_DATE	6/14/2011			6/14/2011			6/14/2011			6/13/2011		
MEDIA: WATER	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
DICHLORODIFLUOROMETHANE		0.5	U		0.5	U		0.5	U		0.5	UJ	C
ETHYLBENZENE		0.5	U		0.5	U		0.5	U		0.5	U	
ISOPROPYLBENZENE		0.5	U		0.5	U		0.5	U		0.5	U	
M+P-XYLENES		1	U		1	U		1	U		1	U	
METHYL ACETATE		0.5	U		0.5	U		0.5	U		0.5	U	
METHYL CYCLOHEXANE		0.5	U		0.5	U		0.5	U		0.5	U	
METHYL TERT-BUTYL ETHER		0.5	U		0.5	U		0.5	U		0.5	U	
METHYLENE CHLORIDE		0.5	U		0.5	U		0.5	U		0.5	U	
O-XYLENE		0.5	U		0.5	U		0.5	U		0.5	U	
STYRENE		0.5	U		0.5	U		0.5	U		0.5	U	
TETRACHLOROETHENE		0.5	U		0.5	U		0.5	U		0.5	UJ	C
TOLUENE		0.5	U		0.5	U		0.5	U		0.5	U	
TRANS-1,2-DICHLOROETHENE		0.5	U		0.5	U		0.5	U		0.5	U	
TRANS-1,3-DICHLOROPROPENE		0.5	U		0.5	U		0.5	U		0.5	U	
TRICHLOROETHENE		0.5	U		0.5	U		0.5	U		0.5	U	
TRICHLOROFLUOROMETHANE		0.5	U		0.5	U		0.5	U		0.5	U	
VINYL CHLORIDE		0.5	U		0.5	U		0.5	U		0.5	U	

PROJ_NO: 02045	NSAMPLE	FT-GW426-3135			FT-GW426-4145			FT-GW426-5155			FT-GW426-6165		
SDG: C2735	LAB_ID	C2735-09			C2735-10			C2735-12			C2735-15		
FRACTION: OV	SAMP_DATE	6/13/2011			6/13/2011			6/13/2011			6/13/2011		
MEDIA: WATER	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
DICHLORODIFLUOROMETHANE		0.5	UJ	CR	0.5	U		0.5	U		0.5	UJ	CR
ETHYLBENZENE		0.5	UJ	R	0.5	U		0.5	U		0.5	UJ	R
ISOPROPYLBENZENE		0.5	UJ	R	0.5	U		0.5	U		0.5	UJ	R
M+P-XYLENES		1	UJ	R	1	U		1	U		1	UJ	R
METHYL ACETATE		0.5	UJ	R	0.5	U		0.5	U		0.5	UJ	R
METHYL CYCLOHEXANE		0.5	UJ	R	0.5	U		0.5	U		0.5	UJ	R
METHYL TERT-BUTYL ETHER		0.5	UJ	R	0.5	U		0.5	U		0.5	UJ	R
METHYLENE CHLORIDE		0.5	UJ	R	0.5	U		0.5	U		0.5	UJ	R
O-XYLENE		0.5	UJ	R	0.5	U		0.5	U		0.5	UJ	R
STYRENE		0.5	UJ	R	0.5	U		0.5	U		0.5	UJ	R
TETRACHLOROETHENE		0.5	UJ	CR	0.5	U		0.5	U		0.5	UJ	CR
TOLUENE		0.5	UJ	R	0.5	U		0.5	U		0.5	UJ	R
TRANS-1,2-DICHLOROETHENE		0.5	UJ	R	0.5	U		0.5	U		0.5	UJ	R
TRANS-1,3-DICHLOROPROPENE		0.5	UJ	R	0.5	U		0.5	U		0.5	UJ	R
TRICHLOROETHENE		0.5	UJ	R	0.5	U		0.5	U		0.5	UJ	R
TRICHLOROFLUOROMETHANE		0.5	UJ	R	0.5	U		0.5	U		0.5	UJ	R
VINYL CHLORIDE		0.5	UJ	R	0.5	U		0.5	U		0.5	UJ	R

PROJ_NO: 02045	NSAMPLE	FT-GW427-2125			FT-GW427-3135			FT-GW427-4145			FT-GW427-5155		
SDG: C2735	LAB_ID	C2735-02			C2735-03			C2735-04			C2735-06		
FRACTION: OV	SAMP_DATE	6/13/2011			6/13/2011			6/13/2011			6/13/2011		
MEDIA: WATER	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
DICHLORODIFLUOROMETHANE		0.5	UJ	CR	0.5	U		0.5	UJ	C	0.5	UJ	C
ETHYLBENZENE		0.5	UJ	R	0.5	U		0.5	U		0.5	U	
ISOPROPYLBENZENE		0.5	UJ	R	0.5	U		0.5	U		0.5	U	
M+P-XYLENES		1	UJ	R	1	U		1	U		1	U	
METHYL ACETATE		0.5	UJ	R	0.5	U		0.5	U		0.5	U	
METHYL CYCLOHEXANE		0.5	UJ	R	0.5	U		0.5	U		0.5	U	
METHYL TERT-BUTYL ETHER		0.5	UJ	R	0.5	U		0.5	U		0.5	U	
METHYLENE CHLORIDE		0.5	UJ	R	0.5	U		0.5	U		0.5	U	
O-XYLENE		0.5	UJ	R	0.5	U		0.5	U		0.5	U	
STYRENE		0.5	UJ	R	0.5	U		0.5	U		0.5	U	
TETRACHLOROETHENE		0.5	UJ	CR	0.5	U		0.5	UJ	C	0.5	UJ	C
TOLUENE		0.5	UJ	R	0.5	U		0.5	U		0.5	U	
TRANS-1,2-DICHLOROETHENE		0.5	UJ	R	0.5	U		0.5	U		0.5	U	
TRANS-1,3-DICHLOROPROPENE		0.5	UJ	R	0.5	U		0.5	U		0.5	U	
TRICHLOROETHENE		0.5	UJ	R	0.5	U		0.5	U		0.5	U	
TRICHLOROFLUOROMETHANE		0.5	UJ	R	0.5	U		0.5	U		0.5	U	
VINYL CHLORIDE		0.5	UJ	R	0.5	U		0.5	U		0.5	U	

PROJ_NO: 02045	NSAMPLE	FT-GW427-6165			FT-RB01-20110613			FT-SB01-20110614			FT-TB01-20110613		
SDG: C2735	LAB_ID	C2735-07			C2735-05			C2735-16			C2735-01		
FRACTION: OV	SAMP_DATE	6/13/2011			6/13/2011			6/14/2011			6/13/2011		
MEDIA: WATER	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
DICHLORODIFLUOROMETHANE		0.5	UJ	C	0.5	UJ	C	0.5	UJ	C	0.5	U	
ETHYLBENZENE		0.5	U		0.5	U		0.5	U		0.5	U	
ISOPROPYLBENZENE		0.5	U		0.5	U		0.5	U		0.5	U	
M+P-XYLENES		1	U		1	U		1	U		1	U	
METHYL ACETATE		0.5	U		0.5	U		0.5	U		0.5	U	
METHYL CYCLOHEXANE		0.5	U		0.5	U		0.5	U		0.5	U	
METHYL TERT-BUTYL ETHER		0.5	U		0.5	U		0.5	U		0.5	U	
METHYLENE CHLORIDE		0.5	U		0.5	U		0.5	U		0.5	U	
O-XYLENE		0.5	U		0.5	U		0.5	U		0.5	U	
STYRENE		0.5	U		0.5	U		0.5	U		0.5	U	
TETRACHLOROETHENE		0.5	UJ	C	0.5	UJ	C	0.5	UJ	C	0.5	U	
TOLUENE		0.5	U		0.5	U		0.5	U		0.5	U	
TRANS-1,2-DICHLOROETHENE		0.5	U		0.5	U		0.5	U		0.5	U	
TRANS-1,3-DICHLOROPROPENE		0.5	U		0.5	U		0.5	U		0.5	U	
TRICHLOROETHENE		0.5	U		0.5	U		0.5	U		0.5	U	
TRICHLOROFLUOROMETHANE		0.5	U		0.5	U		0.5	U		0.5	U	
VINYL CHLORIDE		0.5	U		0.5	U		0.5	U		0.5	U	

Tetra Tech NUS **INTERNAL CORRESPONDENCE**

TO:	**D. BRAYACK**	**DATE:**	**AUGUST 5, 2011**
FROM:	**JOSEPH KALINYAK**	**COPIES:**	**DV FILE**
SUBJECT:	**ORGANIC DATA VALIDATION – VOC NWIRP CALVERTON CTO WE08 SDG C2736**		
SAMPLES:	17 / Aqueous / VOC		

FT-DUP02-20110615	FT-DUP03-20110615	FT-GW421-2125
FT-GW421-3135	FT-GW421-4145	FT-GW421-5155
FT-GW421-6165	FT-GW422-2125	FT-GW422-3135
FT-GW422-4145	FT-GW422-5155	FT-GW422-6165
FT-GW423-6165	FT-GW424-3135	FT-GW424-4145
FT-GW424-5155	FT-GW424-6165	

Overview

The sample set for NWIRP Calverton, CTO WE08, SDG C2736 consisted of seventeen (17) aqueous samples. All aqueous samples were analyzed for volatile organic compounds (VOC). Two (2) field duplicate sample pairs were included in this Sample Delivery Group (SDG); FT-DUP02-20110615 / FT-GW424-3135 and FT-DUP03-20110615 / FT-GW422-5155.

The samples were collected by Tetra Tech on June 15, 2011 and analyzed by ChemTech laboratory. All analyses were conducted in accordance with EPA Method SW-846 8260B analytical and reporting protocols. The data contained in this SDG were validated with regard to the following parameters:

* • Data completeness
* • Hold times
* • GC/MS System Tuning and Performance
• Initial/continuing calibrations
* • Laboratory Control Sample Recoveries
* • Blank Results
* • Surrogate Spike Recoveries
* • Internal Standard Recoveries
* • Field Duplicate Precision
* • Compound Identification
* • Compound Quantitation
* • Detection Limits

The symbol (*) indicates that all quality control criteria were met for this parameter. Qualified analytical results are presented in Appendix A, results as reported by the laboratory are presented in Appendix B, Region II data validation forms are presented in Appendix C, and documentation supporting these findings is presented in Appendix D.

VOC

The initial calibration relative response factor (RRF) was less than the quality control limit of 0.05 for 1,4-dioxane for the instrument MSVOAD on 06/21/11. Additionally, the continuing calibration verifications (CCV) had RRFs less than the 0.05 quality control limit for 1,4-dioxane. All sample 1,4-dioxane results were non-detected and were qualified rejected, (UR).

The continuing calibration verification (CCV) percent difference (%D) was greater than the 20% quality control limit for chloroethane and acetone for instrument MSVOAD on 06/23/11 @ 13:06.

Affecting samples:

FT-GW422-2125	FT-GW424-3135	FT-DUP02-20110615
FT-GW424-4145	FT-GW424-5155	FT-GW424-6165
FT-GW423-6165	FT-GW422-3135	FT-GW422-4145
FT-GW422-5155	FT-DUP03-20110615	FT-GW422-6165
FT-GW421-2125		

Action: All samples had non-detected results for the aforementioned analytes which were qualified estimated, (UJ).

The CCV RRF for acetone was less than the 0.05 quality control limit for instrument MSVOAD on 06/24/11 @ 02:44.

Affecting samples: FT-GW421-3135, FT-GW421-4145, FT-GW421-5155, and FT-GW421-6165
Action: The affected sample non-detected acetone results were qualified rejected, (UR).

The CCV %D was greater than the 20% quality control limit for tetrachloroethene for instrument MSVOAD on 06/24/11 @ 02:44.

Affecting samples: FT-GW421-3135, FT-GW421-4145, FT-GW421-5155, and FT-GW421-6165
Action: All samples had non-detected results for the aforementioned analytes which were qualified estimated, (UJ).

Positive results below the limit of detection (LOD) and above the detection limit were qualified as estimated, (J), due to uncertainty near the detection limit.

Additional Comments

Fifty-two (52) analytes were reported for VOCs.

EXECUTIVE SUMMARY

Laboratory Performance Issues: All sample 1,4-dioxane VOC non-detected analyte results were rejected due to initial calibration and CCV RRF quality control limit non-compliances. Sample FT-GW421-3135, FT-GW421-4145, FT-GW421-5155, and FT-GW421-6165 acetone non-detected results were rejected for CCV RRF quality control limit non-compliances. Sample VOC results were qualified for CCV %D quality control limit non-compliances.

Other Factors Affecting Data Quality: Positive results below the Limit of Detection (LOD) and above the detection limit were qualified as estimated, (J), due to uncertainty near the detection limit.

The data for these analyses were reviewed with reference to the USEPA Region II Hazardous Waste Support Branch Validating Volatile Organic Compounds by Gas Chromatography/Mass Spectrometry SW-846 Method 8260B SOP HW-24 Revision #2 August 2008, USEPA SW-846 Method 8260B, and the Department of Defense (DoD) document entitled "Quality Systems Manual (QSM) for Environmental Laboratories" (April 2009).

TetraTech NUS
Joseph Kalinyak
Chemist/Data Validator

TetraTech NUS
Joseph A. Samchuck
Data Validation Quality Assurance Officer

Attachments:
Appendix A - Qualified Analytical Results
Appendix B - Results as Reported by the Laboratory
Appendix C – Region II Data Validation Forms
Appendix D - Support Documentation

Appendix A

Qualified Analytical Results

Value Qualifier Key (Val Qual)

J – The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.

UJ – The result is an estimated non-detected quantity. The associated numerical value is the approximate concentration of the analyte in the sample.

U - Value is a non-detect as reported by the laboratory.

UR – Non-detected result is considered rejected, (UR), as a result of technical non-compliances.

DATA QUALIFICATION CODE (QUAL CODE)

A = Lab Blank Contamination
B = Field Blank Contamination
C = Calibration Noncompliance (e.g. % RSDs, %Ds, ICVs, CCVs, RRFs, etc.)
C01 = GC/MS Tuning Noncompliance
D = MS/MSD Recovery Noncompliance
E = LCS/LCSD Recovery Noncompliance
F = Lab Duplicate Imprecision
G = Field Duplicate Imprecision
H = Holding Time Exceedance
I = ICP Serial Dilution Noncompliance
J = GFAA PDS - GFAA MSA's $r < 0.995$ / ICP PDS Recovery Noncompliance
K = ICP Interference - includes ICS % R Noncompliance
L = Instrument Calibration Range Exceedance
M = Sample Preservation Noncompliance
N = Internal Standard Noncompliance
N01 = Internal Standard Recovery Noncompliance Dioxins
N02 = Recovery Standard Noncompliance Dioxins
N03 = Clean-up Standard Noncompliance Dioxins
O = Poor Instrument Performance (e.g. base-line drifting)
P = Uncertainty near detection limit (< 2 x IDL for inorganics and <CRQL for organics)
Q = Other problems (can encompass a number of issues; e.g. chromatography,interferences, etc.)
R = Surrogates Recovery Noncompliance
S = Pesticide/PCB Resolution
T = % Breakdown Noncompliance for DDT and Endrin
U = % Difference between columns/detectors >25% for positive results determined via GC/HPLC
V = Non-linear calibrations; correlation coefficient $r < 0.995$
W = EMPC result
X = Signal to noise response drop
Y = Percent solids <30%
Z = Uncertainty at 2 sigma deviation is greater than sample activity

PROJ_NO: 02045	NSAMPLE	FT-DUP02-20110615			FT-DUP03-20110615			FT-GW421-2125			FT-GW421-3135		
SDG: C2736	LAB_ID	C2736-02			C2736-13			C2736-15			C2736-16		
FRACTION: OV	SAMP_DATE	6/15/2011			6/15/2011			6/16/2011			6/16/2011		
MEDIA: WATER	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF	FT-GW424-3135			FT-GW422-5155								
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,1,1-TRICHLOROETHANE		0.5	U		0.5	U		0.5	U		1.4		
1,1,2,2-TETRACHLOROETHANE		0.5	U		0.5	U		0.5	U		0.5	U	
1,1,2-TRICHLOROETHANE		0.5	U		0.5	U		0.5	U		0.5	U	
1,1,2-TRICHLOROTRIFLUOROETHANE		0.5	U		0.5	U		0.5	U		0.5	U	
1,1-DICHLOROETHANE		0.5	U		0.5	U		0.5	U		3		
1,1-DICHLOROETHENE		0.5	U		0.5	U		0.5	U		0.5	U	
1,2,3-TRICHLOROBENZENE		0.5	U		0.5	U		0.5	U		0.5	U	
1,2,4-TRICHLOROBENZENE		0.5	U		0.5	U		0.5	U		0.5	U	
1,2-DIBROMO-3-CHLOROPROPANE		0.5	U		0.5	U		0.5	U		0.5	U	
1,2-DIBROMOETHANE		0.5	U		0.5	U		0.5	U		0.5	U	
1,2-DICHLOROBENZENE		0.5	U		0.5	U		0.5	U		0.5	U	
1,2-DICHLOROETHANE		0.5	U		0.5	U		0.5	U		0.5	U	
1,2-DICHLOROPROPANE		0.5	U		0.5	U		0.5	U		0.5	U	
1,3-DICHLOROBENZENE		0.5	U		0.5	U		0.5	U		0.5	U	
1,4-DICHLOROBENZENE		0.5	U		0.5	U		0.5	U		0.5	U	
1,4-DIOXANE		10	UR	C	10	UR	C	10	UR	C	10	UR	C
2-BUTANONE		2.5	U		2.5	U		2.5	U		2.5	U	
2-HEXANONE		2.5	U		2.5	U		2.5	U		2.5	U	
4-METHYL-2-PENTANONE		2.5	U		2.5	U		2.5	U		2.5	U	
ACETONE		2.5	UJ	C	2.5	UJ	C	2.5	UJ	C	2.5	UR	C
BENZENE		0.5	U		0.5	U		0.5	U		0.5	U	
BROMOCHLOROMETHANE		0.5	U		0.5	U		0.5	U		0.5	U	
BROMODICHLOROMETHANE		0.5	U		0.5	U		0.5	U		0.5	U	
BROMOFORM		0.5	U		0.5	U		0.5	U		0.5	U	
BROMOMETHANE		0.5	U		0.5	U		0.5	U		0.5	U	
CARBON DISULFIDE		0.5	U		0.5	U		0.5	U		0.5	U	
CARBON TETRACHLORIDE		0.5	U		0.5	U		0.5	U		0.5	U	
CHLOROBENZENE		0.5	U		0.5	U		0.5	U		0.5	U	
CHLORODIBROMOMETHANE		0.5	U		0.5	U		0.5	U		0.5	U	
CHLOROETHANE		0.5	UJ	C	0.5	UJ	C	0.5	UJ	C	0.5	U	
CHLOROFORM		0.5	U		0.5	U		0.5	U		0.5	U	
CHLOROMETHANE		0.5	U		0.5	U		0.5	U		0.5	U	
CIS-1,2-DICHLOROETHENE		0.5	U		0.5	U		0.5	U		0.5	U	
CIS-1,3-DICHLOROPROPENE		0.5	U		0.5	U		0.5	U		0.5	U	
CYCLOHEXANE		0.5	U		0.5	U		0.5	U		0.5	U	

PROJ_NO: 02045	NSAMPLE	FT-GW421-4145			FT-GW421-5155			FT-GW421-6165			FT-GW422-2125		
SDG: C2736	LAB_ID	C2736-17			C2736-18			C2736-19			C2736-07		
FRACTION: OV	SAMP_DATE	6/16/2011			6/16/2011			6/16/2011			6/15/2011		
MEDIA: WATER	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,1,1-TRICHLOROETHANE		0.5	U		0.5	U		0.5	U		0.5	U	
1,1,2,2-TETRACHLOROETHANE		0.5	U		0.5	U		0.5	U		0.5	U	
1,1,2-TRICHLOROETHANE		0.5	U		0.5	U		0.5	U		0.5	U	
1,1,2-TRICHLOROTRIFLUOROETHANE		0.5	U		0.5	U		0.5	U		0.5	U	
1,1-DICHLOROETHANE		0.5	U		0.5	U		0.5	U		0.5	U	
1,1-DICHLOROETHENE		0.5	U		0.5	U		0.5	U		0.5	U	
1,2,3-TRICHLOROBENZENE		0.5	U		0.5	U		0.5	U		0.5	U	
1,2,4-TRICHLOROBENZENE		0.5	U		0.5	U		0.5	U		0.5	U	
1,2-DIBROMO-3-CHLOROPROPANE		0.5	U		0.5	U		0.5	U		0.5	U	
1,2-DIBROMOETHANE		0.5	U		0.5	U		0.5	U		0.5	U	
1,2-DICHLOROBENZENE		0.5	U		0.5	U		0.5	U		0.5	U	
1,2-DICHLOROETHANE		0.5	U		0.5	U		0.5	U		0.5	U	
1,2-DICHLOROPROPANE		0.5	U		0.5	U		0.5	U		0.5	U	
1,3-DICHLOROBENZENE		0.5	U		0.5	U		0.5	U		0.5	U	
1,4-DICHLOROBENZENE		0.5	U		0.5	U		0.5	U		0.5	U	
1,4-DIOXANE		10	UR	C	10	UR	C	10	UR	C	10	UR	C
2-BUTANONE		2.5	U		2.5	U		2.5	U		2.5	U	
2-HEXANONE		2.5	U		2.5	U		2.5	U		2.5	U	
4-METHYL-2-PENTANONE		2.5	U		2.5	U		2.5	U		2.5	U	
ACETONE		2.5	UR	C	2.5	UR	C	2.5	UR	C	2.5	UJ	C
BENZENE		0.5	U		0.5	U		0.5	U		0.5	U	
BROMOCHLOROMETHANE		0.5	U		0.5	U		0.5	U		0.5	U	
BROMODICHLOROMETHANE		0.5	U		0.5	U		0.5	U		0.5	U	
BROMOFORM		0.5	U		0.5	U		0.5	U		0.5	U	
BROMOMETHANE		0.5	U		0.5	U		0.5	U		0.5	U	
CARBON DISULFIDE		0.5	U		0.5	U		0.5	U		0.5	U	
CARBON TETRACHLORIDE		0.5	U		0.5	U		0.5	U		0.5	U	
CHLOROBENZENE		0.5	U		0.5	U		0.5	U		0.5	U	
CHLORODIBROMOMETHANE		0.5	U		0.5	U		0.5	U		0.5	U	
CHLOROETHANE		0.5	U		0.5	U		0.5	U		0.5	UJ	C
CHLOROFORM		0.5	U		0.5	U		0.65	J	P	0.5	U	
CHLOROMETHANE		0.5	U		0.5	U		0.5	U		0.5	U	
CIS-1,2-DICHLOROETHENE		0.5	U		0.5	U		0.5	U		0.5	U	
CIS-1,3-DICHLOROPROPENE		0.5	U		0.5	U		0.5	U		0.5	U	
CYCLOHEXANE		0.5	U		0.5	U		0.5	U		0.5	U	

PROJ_NO: 02045	NSAMPLE	FT-GW422-3135			FT-GW422-4145			FT-GW422-5155			FT-GW422-6165		
SDG: C2736	LAB_ID	C2736-10			C2736-11			C2736-12			C2736-14		
FRACTION: OV	SAMP_DATE	6/15/2011			6/15/2011			6/15/2011			6/15/2011		
MEDIA: WATER	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,1,1-TRICHLOROETHANE		0.5	U		0.5	U		0.5	U		0.5	U	
1,1,2,2-TETRACHLOROETHANE		0.5	U		0.5	U		0.5	U		0.5	U	
1,1,2-TRICHLOROETHANE		0.5	U		0.5	U		0.5	U		0.5	U	
1,1,2-TRICHLOROTRIFLUOROETHANE		0.5	U		0.5	U		0.5	U		0.5	U	
1,1-DICHLOROETHANE		0.5	U		0.5	U		0.5	U		0.5	U	
1,1-DICHLOROETHENE		0.5	U		0.5	U		0.5	U		0.5	U	
1,2,3-TRICHLOROBENZENE		0.5	U		0.5	U		0.5	U		0.5	U	
1,2,4-TRICHLOROBENZENE		0.5	U		0.5	U		0.5	U		0.5	U	
1,2-DIBROMO-3-CHLOROPROPANE		0.5	U		0.5	U		0.5	U		0.5	U	
1,2-DIBROMOETHANE		0.5	U		0.5	U		0.5	U		0.5	U	
1,2-DICHLOROBENZENE		0.5	U		0.5	U		0.5	U		0.5	U	
1,2-DICHLOROETHANE		0.5	U		0.5	U		0.5	U		0.5	U	
1,2-DICHLOROPROPANE		0.5	U		0.5	U		0.5	U		0.5	U	
1,3-DICHLOROBENZENE		0.5	U		0.5	U		0.5	U		0.5	U	
1,4-DICHLOROBENZENE		0.5	U		0.5	U		0.5	U		0.5	U	
1,4-DIOXANE		10	UR	C	10	UR	C	10	UR	C	10	UR	C
2-BUTANONE		2.5	U		2.5	U		2.5	U		2.5	U	
2-HEXANONE		2.5	U		2.5	U		2.5	U		2.5	U	
4-METHYL-2-PENTANONE		2.5	U		2.5	U		2.5	U		2.5	U	
ACETONE		2.5	UJ	C	2.5	UJ	C	2.5	UJ	C	2.5	UJ	C
BENZENE		0.5	U		0.5	U		0.5	U		0.5	U	
BROMOCHLOROMETHANE		0.5	U		0.5	U		0.5	U		0.5	U	
BROMODICHLOROMETHANE		0.5	U		0.5	U		0.5	U		0.5	U	
BROMOFORM		0.5	U		0.5	U		0.5	U		0.5	U	
BROMOMETHANE		0.5	U		0.5	U		0.5	U		0.5	U	
CARBON DISULFIDE		0.5	U		0.5	U		0.5	U		0.5	U	
CARBON TETRACHLORIDE		0.5	U		0.5	U		0.5	U		0.5	U	
CHLOROBENZENE		0.5	U		0.5	U		0.5	U		0.5	U	
CHLORODIBROMOMETHANE		0.5	U		0.5	U		0.5	U		0.5	U	
CHLOROETHANE		0.5	UJ	C	0.5	UJ	C	0.5	UJ	C	0.5	UJ	C
CHLOROFORM		0.5	U		0.5	U		0.5	U		0.62	J	P
CHLOROMETHANE		0.5	U		0.5	U		0.5	U		0.5	U	
CIS-1,2-DICHLOROETHENE		0.5	U		0.5	U		0.5	U		0.5	U	
CIS-1,3-DICHLOROPROPENE		0.5	U		0.5	U		0.5	U		0.5	U	
CYCLOHEXANE		0.5	U		0.5	U		0.5	U		0.5	U	

PROJ_NO: 02045	NSAMPLE	FT-GW423-6165			FT-GW424-3135			FT-GW424-4145			FT-GW424-5155		
SDG: C2736	LAB_ID	C2736-06			C2736-01			C2736-03			C2736-04		
FRACTION: OV	SAMP_DATE	6/15/2011			6/15/2011			6/15/2011			6/15/2011		
MEDIA: WATER	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,1,1-TRICHLOROETHANE		0.5	U		0.5	U		0.5	U		0.5	U	
1,1,2,2-TETRACHLOROETHANE		0.5	U		0.5	U		0.5	U		0.5	U	
1,1,2-TRICHLOROETHANE		0.5	U		0.5	U		0.5	U		0.5	U	
1,1,2-TRICHLOROTRIFLUOROETHANE		0.5	U		0.5	U		0.5	U		0.5	U	
1,1-DICHLOROETHANE		0.5	U		0.5	U		0.5	U		0.5	U	
1,1-DICHLOROETHENE		0.5	U		0.5	U		0.5	U		0.5	U	
1,2,3-TRICHLOROBENZENE		0.5	U		0.5	U		0.5	U		0.5	U	
1,2,4-TRICHLOROBENZENE		0.5	U		0.5	U		0.5	U		0.5	U	
1,2-DIBROMO-3-CHLOROPROPANE		0.5	U		0.5	U		0.5	U		0.5	U	
1,2-DIBROMOETHANE		0.5	U		0.5	U		0.5	U		0.5	U	
1,2-DICHLOROBENZENE		0.5	U		0.5	U		0.5	U		0.5	U	
1,2-DICHLOROETHANE		0.5	U		0.5	U		0.5	U		0.5	U	
1,2-DICHLOROPROPANE		0.5	U		0.5	U		0.5	U		0.5	U	
1,3-DICHLOROBENZENE		0.5	U		0.5	U		0.5	U		0.5	U	
1,4-DICHLOROBENZENE		0.5	U		0.5	U		0.5	U		0.5	U	
1,4-DIOXANE		10	UR	C	10	UR	C	10	UR	C	10	UR	C
2-BUTANONE		2.5	U		2.5	U		2.5	U		2.5	U	
2-HEXANONE		2.5	U		2.5	U		2.5	U		2.5	U	
4-METHYL-2-PENTANONE		2.5	U		2.5	U		2.5	U		2.5	U	
ACETONE		2.5	UJ	C	2.5	UJ	C	2.5	UJ	C	2.5	UJ	C
BENZENE		0.5	U		0.5	U		0.5	U		0.5	U	
BROMOCHLOROMETHANE		0.5	U		0.5	U		0.5	U		0.5	U	
BROMODICHLOROMETHANE		0.5	U		0.5	U		0.5	U		0.5	U	
BROMOFORM		0.5	U		0.5	U		0.5	U		0.5	U	
BROMOMETHANE		0.5	U		0.5	U		0.5	U		0.5	U	
CARBON DISULFIDE		0.5	U		0.5	U		0.5	U		0.5	U	
CARBON TETRACHLORIDE		0.5	U		0.5	U		0.5	U		0.5	U	
CHLOROBENZENE		0.5	U		0.5	U		0.5	U		0.5	U	
CHLORODIBROMOMETHANE		0.5	U		0.5	U		0.5	U		0.5	U	
CHLOROETHANE		0.5	UJ	C	0.5	UJ	C	0.5	UJ	C	0.5	UJ	C
CHLOROFORM		0.58	J	P	0.5	U		0.5	U		0.78	J	P
CHLOROMETHANE		0.5	U		0.5	U		0.5	U		0.5	U	
CIS-1,2-DICHLOROETHENE		0.5	U		0.5	U		0.5	U		0.5	U	
CIS-1,3-DICHLOROPROPENE		0.5	U		0.5	U		0.5	U		0.5	U	
CYCLOHEXANE		0.5	U		0.5	U		0.5	U		0.5	U	

PROJ_NO: 02045	NSAMPLE	FT-GW424-6165		
SDG: C2736	LAB_ID	C2736-05		
FRACTION: OV	SAMP_DATE	6/15/2011		
MEDIA: WATER	QC_TYPE	NM		
	UNITS	UG/L		
	PCT_SOLIDS	0.0		
	DUP_OF			
PARAMETER		RESULT	VQL	QLCD
1,1,1-TRICHLOROETHANE		0.5	U	
1,1,2,2-TETRACHLOROETHANE		0.5	U	
1,1,2-TRICHLOROETHANE		0.5	U	
1,1,2-TRICHLOROTRIFLUOROETHANE		0.5	U	
1,1-DICHLOROETHANE		0.5	U	
1,1-DICHLOROETHENE		0.5	U	
1,2,3-TRICHLOROBENZENE		0.5	U	
1,2,4-TRICHLOROBENZENE		0.5	U	
1,2-DIBROMO-3-CHLOROPROPANE		0.5	U	
1,2-DIBROMOETHANE		0.5	U	
1,2-DICHLOROBENZENE		0.5	U	
1,2-DICHLOROETHANE		0.5	U	
1,2-DICHLOROPROPANE		0.5	U	
1,3-DICHLOROBENZENE		0.5	U	
1,4-DICHLOROBENZENE		0.5	U	
1,4-DIOXANE		10	UR	C
2-BUTANONE		2.5	U	
2-HEXANONE		2.5	U	
4-METHYL-2-PENTANONE		2.5	U	
ACETONE		2.5	UJ	C
BENZENE		0.5	U	
BROMOCHLOROMETHANE		0.5	U	
BROMODICHLOROMETHANE		0.5	U	
BROMOFORM		0.5	U	
BROMOMETHANE		0.5	U	
CARBON DISULFIDE		0.5	U	
CARBON TETRACHLORIDE		0.5	U	
CHLOROBENZENE		0.5	U	
CHLORODIBROMOMETHANE		0.5	U	
CHLOROETHANE		0.5	UJ	C
CHLOROFORM		1.2		
CHLOROMETHANE		0.5	U	
CIS-1,2-DICHLOROETHENE		0.5	U	
CIS-1,3-DICHLOROPROPENE		0.5	U	
CYCLOHEXANE		0.5	U	

PROJ_NO: 02045	NSAMPLE	FT-DUP02-20110615			FT-DUP03-20110615			FT-GW421-2125			FT-GW421-3135		
SDG: C2736	LAB_ID	C2736-02			C2736-13			C2736-15			C2736-16		
FRACTION: OV	SAMP_DATE	6/15/2011			6/15/2011			6/16/2011			6/16/2011		
MEDIA: WATER	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF	FT-GW424-3135			FT-GW422-5155								
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
DICHLORODIFLUOROMETHANE		0.5	U		0.5	U		0.5	U		0.5	U	
ETHYLBENZENE		0.5	U		0.5	U		0.5	U		0.5	U	
ISOPROPYLBENZENE		0.5	U		0.5	U		0.5	U		0.5	U	
M+P-XYLENES		1	U		1	U		1	U		1	U	
METHYL ACETATE		0.5	U		0.5	U		0.5	U		0.5	U	
METHYL CYCLOHEXANE		0.5	U		0.5	U		0.5	U		0.5	U	
METHYL TERT-BUTYL ETHER		0.5	U		0.5	U		0.5	U		0.5	U	
METHYLENE CHLORIDE		0.5	U		0.5	U		0.5	U		0.5	U	
O-XYLENE		0.5	U		0.5	U		0.5	U		0.5	U	
STYRENE		0.5	U		0.5	U		0.5	U		0.5	U	
TETRACHLOROETHENE		0.5	U		0.5	U		0.5	U		0.5	UJ	C
TOLUENE		0.5	U		0.5	U		0.5	U		0.5	U	
TRANS-1,2-DICHLOROETHENE		0.5	U		0.5	U		0.5	U		0.5	U	
TRANS-1,3-DICHLOROPROPENE		0.5	U		0.5	U		0.5	U		0.5	U	
TRICHLOROETHENE		0.5	U		0.5	U		0.5	U		28		
TRICHLOROFLUOROMETHANE		0.5	U		0.5	U		0.5	U		0.5	U	
VINYL CHLORIDE		0.5	U		0.5	U		0.5	U		0.5	U	

PROJ_NO: 02045	NSAMPLE	FT-GW421-4145			FT-GW421-5155			FT-GW421-6165			FT-GW422-2125		
SDG: C2736	LAB_ID	C2736-17			C2736-18			C2736-19			C2736-07		
FRACTION: OV	SAMP_DATE	6/16/2011			6/16/2011			6/16/2011			6/15/2011		
MEDIA: WATER	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
DICHLORODIFLUOROMETHANE		0.5	U		0.5	U		0.5	U		0.5	U	
ETHYLBENZENE		0.5	U		0.5	U		0.5	U		0.5	U	
ISOPROPYLBENZENE		0.5	U		0.5	U		0.5	U		0.5	U	
M+P-XYLENES		1	U		1	U		1	U		1	U	
METHYL ACETATE		0.5	U		0.5	U		0.5	U		0.5	U	
METHYL CYCLOHEXANE		0.5	U		0.5	U		0.5	U		0.5	U	
METHYL TERT-BUTYL ETHER		0.5	U		0.5	U		0.5	U		0.5	U	
METHYLENE CHLORIDE		0.5	U		0.5	U		0.5	U		0.5	U	
O-XYLENE		0.5	U		0.5	U		0.5	U		0.5	U	
STYRENE		0.5	U		0.5	U		0.5	U		0.5	U	
TETRACHLOROETHENE		0.5	UJ	C	0.5	UJ	C	0.5	UJ	C	0.5	U	
TOLUENE		0.5	U		0.5	U		0.5	U		0.5	U	
TRANS-1,2-DICHLOROETHENE		0.5	U		0.5	U		0.5	U		0.5	U	
TRANS-1,3-DICHLOROPROPENE		0.5	U		0.5	U		0.5	U		0.5	U	
TRICHLOROETHENE		0.5	U		0.5	U		0.5	U		0.5	U	
TRICHLOROFLUOROMETHANE		0.5	U		0.5	U		0.5	U		0.5	U	
VINYL CHLORIDE		0.5	U		0.5	U		0.5	U		0.5	U	

PROJ_NO: 02045	NSAMPLE	FT-GW422-3135			FT-GW422-4145			FT-GW422-5155			FT-GW422-6165		
SDG: C2736	LAB_ID	C2736-10			C2736-11			C2736-12			C2736-14		
FRACTION: OV	SAMP_DATE	6/15/2011			6/15/2011			6/15/2011			6/15/2011		
MEDIA: WATER	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
DICHLORODIFLUOROMETHANE		0.5	U		0.5	U		0.5	U		0.5	U	
ETHYLBENZENE		0.5	U		0.5	U		0.5	U		0.5	U	
ISOPROPYLBENZENE		0.5	U		0.5	U		0.5	U		0.5	U	
M+P-XYLENES		1	U		1	U		1	U		1	U	
METHYL ACETATE		0.5	U		0.5	U		0.5	U		0.5	U	
METHYL CYCLOHEXANE		0.5	U		0.5	U		0.5	U		0.5	U	
METHYL TERT-BUTYL ETHER		0.5	U		0.5	U		0.5	U		0.5	U	
METHYLENE CHLORIDE		0.5	U		0.5	U		0.5	U		0.5	U	
O-XYLENE		0.5	U		0.5	U		0.5	U		0.5	U	
STYRENE		0.5	U		0.5	U		0.5	U		0.5	U	
TETRACHLOROETHENE		0.69	J	P	0.5	U		0.5	U		0.5	U	
TOLUENE		0.5	U		0.5	U		0.5	U		0.5	U	
TRANS-1,2-DICHLOROETHENE		0.5	U		0.5	U		0.5	U		0.5	U	
TRANS-1,3-DICHLOROPROPENE		0.5	U		0.5	U		0.5	U		0.5	U	
TRICHLOROETHENE		6.2			0.5	U		0.5	U		0.5	U	
TRICHLOROFLUOROMETHANE		0.5	U		0.5	U		0.5	U		0.5	U	
VINYL CHLORIDE		0.5	U		0.5	U		0.5	U		0.5	U	

PROJ_NO: 02045	NSAMPLE	FT-GW423-6165			FT-GW424-3135			FT-GW424-4145			FT-GW424-5155		
SDG: C2736	LAB_ID	C2736-06			C2736-01			C2736-03			C2736-04		
FRACTION: OV	SAMP_DATE	6/15/2011			6/15/2011			6/15/2011			6/15/2011		
MEDIA: WATER	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
DICHLORODIFLUOROMETHANE		0.5	U		0.5	U		0.5	U		0.5	U	
ETHYLBENZENE		0.5	U		0.5	U		0.5	U		0.5	U	
ISOPROPYLBENZENE		0.5	U		0.5	U		0.5	U		0.5	U	
M+P-XYLENES		1	U		1	U		1	U		1	U	
METHYL ACETATE		0.5	U		0.5	U		0.5	U		0.5	U	
METHYL CYCLOHEXANE		0.5	U		0.5	U		0.5	U		0.5	U	
METHYL TERT-BUTYL ETHER		0.5	U		0.5	U		0.5	U		0.5	U	
METHYLENE CHLORIDE		0.5	U		0.5	U		0.5	U		0.5	U	
O-XYLENE		0.5	U		0.5	U		0.5	U		0.5	U	
STYRENE		0.5	U		0.5	U		0.5	U		0.5	U	
TETRACHLOROETHENE		0.5	U		0.5	U		0.5	U		0.5	U	
TOLUENE		0.5	U		0.5	U		0.5	U		0.5	U	
TRANS-1,2-DICHLOROETHENE		0.5	U		0.5	U		0.5	U		0.5	U	
TRANS-1,3-DICHLOROPROPENE		0.5	U		0.5	U		0.5	U		0.5	U	
TRICHLOROETHENE		0.5	U		0.5	U		0.5	U		0.5	U	
TRICHLOROFLUOROMETHANE		0.5	U		0.5	U		0.5	U		0.5	U	
VINYL CHLORIDE		0.5	U		0.5	U		0.5	U		0.5	U	

PROJ_NO: 02045	NSAMPLE	FT-GW424-6165		
SDG: C2736	LAB_ID	C2736-05		
FRACTION: OV	SAMP_DATE	6/15/2011		
MEDIA: WATER	QC_TYPE	NM		
	UNITS	UG/L		
	PCT_SOLIDS	0.0		
	DUP_OF			
PARAMETER		RESULT	VQL	QLCD
DICHLORODIFLUOROMETHANE		0.5	U	
ETHYLBENZENE		0.5	U	
ISOPROPYLBENZENE		0.5	U	
M+P-XYLENES		1	U	
METHYL ACETATE		0.5	U	
METHYL CYCLOHEXANE		0.5	U	
METHYL TERT-BUTYL ETHER		0.5	U	
METHYLENE CHLORIDE		0.5	U	
O-XYLENE		0.5	U	
STYRENE		0.5	U	
TETRACHLOROETHENE		0.5	U	
TOLUENE		0.5	U	
TRANS-1,2-DICHLOROETHENE		0.5	U	
TRANS-1,3-DICHLOROPROPENE		0.5	U	
TRICHLOROETHENE		0.5	U	
TRICHLOROFLUOROMETHANE		0.5	U	
VINYL CHLORIDE		0.5	U	

Tetra Tech NUS **INTERNAL CORRESPONDENCE**

TO:	**D. BRAYACK**	**DATE:**	**DECEMBER 12, 2011**
FROM:	**A. COGNETTI**	**COPIES:**	**DV FILE**

SUBJECT: **ORGANIC DATA VALIDATION – VOC**
NWIRP CALVERTON, CTO WE63
SAMPLE DELIVERY GROUP (SDG) C4195

SAMPLES: 17/Aqueous/VOC

FT-DUP01-20111013	FT-DUP02-20111014	FT-FB01-20111014
FT-GW428-2125	FT-GW428-3135	FT-GW48-4145
FT-GW428-5155	FT-GW428-6165	FT-GW428-7175
FT-GW429-2125	FT-GW429-3135	FT-GW429-4145
FT-GW429-5155	FT-GW429-6165	FT-GW429-7175
FT-RB01-201111014	FT-TB01-20111007	

Overview

The sample set for NWIRP Calverton SDG C4195 consisted of fourteen (14) aqueous environmental samples, a field blank, a rinsate blank and a trip blank. All samples were analyzed for select volatile organic compounds (VOCs). There are two (2) field duplicate sample pairs were associated with this SDG: FT-GW429-7175/FT-DUP01-20111013 and FT-GW429-3135/FT-DUP02-20111014.

The samples were collected by Tetra Tech on October 7, 13 and 14, 2011 and analyzed by Chemtech. All analyses were conducted in accordance with EPA Method SW-846 8260B analytical and reporting protocols. The data contained in this SDG was validated with regard to the following parameters:

* • Data completeness
* • Hold times
* • GC/MS System Tuning and Performance
* • Initial/continuing calibrations
* • Laboratory Method Blank Results
• Surrogate Spike Recoveries
* • Internal Standard Results
* • Matrix Spike/Matrix Spike Duplicate Results
* • Laboratory Control Sample/Laboratory Control Sample Duplicate Results
* • Field Duplicate Precision
* • Compound Identification
* • Compound Quantitation
* • Detection Limits

The symbol (*) indicates that all quality control criteria were met for this parameter. Qualified analytical results are presented in Appendix A, results as reported by the laboratory are presented in Appendix B, Region II data validation forms are presented in Appendix C, and documentation supporting these findings is presented in Appendix D.

VOCs

The percent recoveries (%Rs) of surrogate toluene-d8 were less than the lower quality control limit but greater than 10% in samples FT-GW428-4145, FT-DUP01-20111013, FT-GW429-5155, FT-GW429-3135, FT-DUP02-20111014 and FT-GW429-4145. The aforementioned samples were re-analyzed. In all samples, the %Rs of toluene-d8 were less than the lower quality control limit but greater than 10%. The original samples were used for validation and reporting purposes. The nondetected results were qualified as estimated (UJ).

Additional Comments

The laboratory control sample (LCS) percent recovery (%R) of dichlorodifluoromethane was greater than the upper quality control limit in batch BSG1020W1. This batch affects the re-analyzed samples which were not used for validation purposes. No action was taken.

Positive results reported below the Limit of Quantitation (LOQ) but above the Method Detection Limit (MDL) were qualified as estimated, (J).

Non-detected results are reported to the Limit of Detection (LOD).

EXECUTIVE SUMMARY

Laboratory Performance Issues: The %R of surrogate toluene-d8 was outside quality control limits in several samples.

Other Factors Affecting Data Quality: Positive results reported below the LOQ but above the MDL were qualified as estimated (J).

The data for these analyses were reviewed with reference to the SOP #HW-24 Revision #2, USEPA Region II Hazardous Waste Support Branch Validating Volatile Organic Compounds by Gas Chromatography/Mass Spectrometry SW-846 Method 8260B (August 2008), EPA Method SW-846 8260B and method RSK 175 analytical and reporting protocols, and the Department of Defense (DoD) document entitled "Quality Systems Manual (QSM) for Environmental Laboratories" (April 2009).

Ann Cognetti

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Chemist/Data Validator

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Attachments:
1. Appendix A - Qualified Analytical Results
2. Appendix B - Results as Reported by the Laboratory
3. Appendix C – Region II Data Validation Forms
4. Appendix D - Support Documentation

Appendix A

Qualified Analytical Results

Data Validation Qualifier Codes:

A = Lab Blank Contamination
B = Field Blank Contamination
C = Calibration Noncompliance (e.g. % RSDs, %Ds, ICVs, CCVs, RRFs, etc.)
C01 = GC/MS Tuning Noncompliance
D = MS/MSD Recovery Noncompliance
E = LCS/LCSD Recovery Noncompliance
F = Lab Duplicate Imprecision
G = Field Duplicate Imprecision
H = Holding Time Exceedance
I = ICP Serial Dilution Noncompliance
J = GFAA PDS - GFAA MSA's $r < 0.995$
K = ICP Interference - includes ICS % R Noncompliance
L = Instrument Calibration Range Exceedance
M = Sample Preservation Noncompliance
N = Internal Standard Noncompliance
N01 = Internal Standard Recovery Noncompliance Dioxins
N02 = Recovery Standard Noncompliance Dioxins
N03 = Clean-up Standard Noncompliance Dioxins
O = Poor Instrument Performance (e.g. base-line drifting)
P = Uncertainty near detection limit (< 2 x IDL for inorganics and <CRQL for organics)
Q = Other problems (can be any number of issues; e.g. poor chromatography,interferences, etc.)
R = Surrogates Recovery Noncompliance
S = Pesticide/PCB Resolution
T = % Breakdown Noncompliance for DDT and Endrin
U = % Difference between columns/detectors >25% for positive results determined via GC/HPLC
V = Non-linear calibrations; correlation coefficient $r < 0.995$
W = EMPC result
X = Signal to noise response drop
Y = Percent solids <30%
Z = Uncertainty at 2 sigma deviation is greater than sample activity

PROJ_NO: 02750	NSAMPLE	FT-DUP01-20111013			FT-DUP02-20111014			FT-FB01-20111014			FT-GW428-2125		
SDG: C4195	LAB_ID	C4195-13			C4195-19			C4195-14			C4195-09		
FRACTION: OV	SAMP_DATE	10/13/2011			10/14/2011			10/14/2011			10/13/2011		
MEDIA: WATER	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF	FT-GW429-7175			FT-GW429-3135								
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,1,1-TRICHLOROETHANE		0.5	UJ	R	0.5	UJ	R	0.5	U		0.5	U	
1,1,2,2-TETRACHLOROETHANE		0.5	UJ	R	0.5	UJ	R	0.5	U		0.5	U	
1,1,2-TRICHLOROETHANE		0.5	UJ	R	0.5	UJ	R	0.5	U		0.5	U	
1,1-DICHLOROETHANE		0.5	UJ	R	0.5	UJ	R	0.5	U		0.5	U	
1,1-DICHLOROETHENE		0.5	UJ	R	0.5	UJ	R	0.5	U		0.5	U	
1,2-DICHLOROETHANE		0.5	UJ	R	0.5	UJ	R	0.5	U		0.5	U	
2-BUTANONE		2.5	UJ	R	2.5	UJ	R	2.5	U		2.5	U	
ACETONE		2.5	UJ	R	2.5	UJ	R	2.5	U		2.5	U	
BENZENE		0.5	UJ	R	0.5	UJ	R	0.5	U		0.5	U	
CIS-1,2-DICHLOROETHENE		0.5	UJ	R	0.5	UJ	R	0.5	U		0.5	U	
DICHLORODIFLUOROMETHANE		0.5	UJ	R	0.5	UJ	R	0.5	U		0.5	U	
ETHYLBENZENE		0.5	UJ	R	0.5	UJ	R	0.5	U		0.5	U	
M+P-XYLENES		1	UJ	R	1	UJ	R	1	U		1	U	
METHYLENE CHLORIDE		0.5	UJ	R	0.5	UJ	R	0.5	U		0.5	U	
O-XYLENE		0.5	UJ	R	0.5	UJ	R	0.5	U		0.5	U	
TETRACHLOROETHENE		0.5	UJ	R	0.5	UJ	R	0.5	U		0.5	U	
TOLUENE		0.5	UJ	R	0.5	UJ	R	0.5	U		0.5	U	
TRANS-1,2-DICHLOROETHENE		0.5	UJ	R	0.5	UJ	R	0.5	U		0.5	U	
TRICHLOROETHENE		0.5	UJ	R	0.5	UJ	R	0.5	U		5.2		
TRICHLOROFLUOROMETHANE		0.5	UJ	R	0.5	UJ	R	0.5	U		0.5	U	
VINYL CHLORIDE		0.5	UJ	R	0.5	UJ	R	0.5	U		0.5	U	

PROJ_NO: 02750	NSAMPLE	FT-GW428-3135			FT-GW428-4145			FT-GW428-5155			FT-GW428-6165		
SDG: C4195	LAB_ID	C4195-06			C4195-05			C4195-04			C4195-03		
FRACTION: OV	SAMP_DATE	10/13/2011			10/13/2011			10/13/2011			10/13/2011		
MEDIA: WATER	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,1,1-TRICHLOROETHANE		0.5	U		0.5	UJ	R	0.5	U		0.5	U	
1,1,2,2-TETRACHLOROETHANE		0.5	U		0.5	UJ	R	0.5	U		0.5	U	
1,1,2-TRICHLOROETHANE		0.5	U		0.5	UJ	R	0.5	U		0.5	U	
1,1-DICHLOROETHANE		0.5	U		0.5	UJ	R	0.5	U		0.5	U	
1,1-DICHLOROETHENE		0.5	U		0.5	UJ	R	0.5	U		0.5	U	
1,2-DICHLOROETHANE		0.5	U		0.5	UJ	R	0.5	U		0.5	U	
2-BUTANONE		2.5	U		2.5	UJ	R	2.5	U		2.5	U	
ACETONE		2.5	U		2.5	UJ	R	2.5	U		2.5	U	
BENZENE		0.5	U		0.5	UJ	R	0.5	U		0.5	U	
CIS-1,2-DICHLOROETHENE		0.5	U		0.5	UJ	R	0.5	U		0.5	U	
DICHLORODIFLUOROMETHANE		0.5	U		0.5	UJ	R	0.5	U		0.5	U	
ETHYLBENZENE		0.5	U		0.5	UJ	R	0.5	U		0.5	U	
M+P-XYLENES		1	U		1	UJ	R	1	U		1	U	
METHYLENE CHLORIDE		0.5	U		0.5	UJ	R	0.5	U		0.5	U	
O-XYLENE		0.5	U		0.5	UJ	R	0.5	U		0.5	U	
TETRACHLOROETHENE		0.5	U		0.5	UJ	R	0.5	U		0.5	U	
TOLUENE		0.5	U		0.5	UJ	R	0.5	U		0.5	U	
TRANS-1,2-DICHLOROETHENE		0.5	U		0.5	UJ	R	0.5	U		0.5	U	
TRICHLOROETHENE		0.94	J	P	0.5	UJ	R	0.5	U		0.5	U	
TRICHLOROFLUOROMETHANE		0.5	U		0.5	UJ	R	0.5	U		0.5	U	
VINYL CHLORIDE		0.5	U		0.5	UJ	R	0.5	U		0.5	U	

PROJ_NO: 02750	NSAMPLE	FT-GW428-7175			FT-GW429-2125			FT-GW429-3135			FT-GW429-4145		
SDG: C4195	LAB_ID	C4195-02			C4195-18			C4195-17			C4195-16		
FRACTION: OV	SAMP_DATE	10/13/2011			10/14/2011			10/14/2011			10/14/2011		
MEDIA: WATER	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,1,1-TRICHLOROETHANE		0.5	U		0.5	U		0.5	UJ	R	0.5	UJ	R
1,1,2,2-TETRACHLOROETHANE		0.5	U		0.5	U		0.5	UJ	R	0.5	UJ	R
1,1,2-TRICHLOROETHANE		0.5	U		0.5	U		0.5	UJ	R	0.5	UJ	R
1,1-DICHLOROETHANE		0.5	U		0.5	U		0.5	UJ	R	0.5	UJ	R
1,1-DICHLOROETHENE		0.5	U		0.5	U		0.5	UJ	R	0.5	UJ	R
1,2-DICHLOROETHANE		0.5	U		0.5	U		0.5	UJ	R	0.5	UJ	R
2-BUTANONE		2.5	U		2.5	U		2.5	UJ	R	2.5	UJ	R
ACETONE		2.5	U		2.5	U		2.5	UJ	R	2.5	UJ	R
BENZENE		0.5	U		0.5	U		0.5	UJ	R	0.5	UJ	R
CIS-1,2-DICHLOROETHENE		0.5	U		0.5	U		0.5	UJ	R	0.5	UJ	R
DICHLORODIFLUOROMETHANE		0.5	U		0.5	U		0.5	UJ	R	0.5	UJ	R
ETHYLBENZENE		0.5	U		0.5	U		0.5	UJ	R	0.5	UJ	R
M+P-XYLENES		1	U		1	U		1	UJ	R	1	UJ	R
METHYLENE CHLORIDE		0.5	U		0.5	U		0.5	UJ	R	0.5	UJ	R
O-XYLENE		0.5	U		0.5	U		0.5	UJ	R	0.5	UJ	R
TETRACHLOROETHENE		0.5	U		0.5	U		0.5	UJ	R	0.5	UJ	R
TOLUENE		0.5	U		0.5	U		0.5	UJ	R	0.5	UJ	R
TRANS-1,2-DICHLOROETHENE		0.5	U		0.5	U		0.5	UJ	R	0.5	UJ	R
TRICHLOROETHENE		0.5	U		0.5	U		0.5	UJ	R	0.5	UJ	R
TRICHLOROFLUOROMETHANE		0.5	U		0.5	U		0.5	UJ	R	0.5	UJ	R
VINYL CHLORIDE		0.5	U		0.5	U		0.5	UJ	R	0.5	UJ	R

PROJ_NO: 02750	NSAMPLE	FT-GW429-5155			FT-GW429-6165			FT-GW429-7175			FT-RB01-20111014		
SDG: C4195	LAB_ID	C4195-12			C4195-11			C4195-10			C4195-15		
FRACTION: OV	SAMP_DATE	10/13/2011			10/13/2011			10/13/2011			10/14/2011		
MEDIA: WATER	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,1,1-TRICHLOROETHANE		0.5	UJ	R	0.5	U		0.5	U		0.5	U	
1,1,2,2-TETRACHLOROETHANE		0.5	UJ	R	0.5	U		0.5	U		0.5	U	
1,1,2-TRICHLOROETHANE		0.5	UJ	R	0.5	U		0.5	U		0.5	U	
1,1-DICHLOROETHANE		0.5	UJ	R	0.5	U		0.5	U		0.5	U	
1,1-DICHLOROETHENE		0.5	UJ	R	0.5	U		0.5	U		0.5	U	
1,2-DICHLOROETHANE		0.5	UJ	R	0.5	U		0.5	U		0.5	U	
2-BUTANONE		2.5	UJ	R	2.5	U		2.5	U		2.5	U	
ACETONE		2.5	UJ	R	2.5	U		2.5	U		2.5	U	
BENZENE		0.5	UJ	R	0.5	U		0.5	U		0.5	U	
CIS-1,2-DICHLOROETHENE		0.5	UJ	R	0.5	U		0.5	U		0.5	U	
DICHLORODIFLUOROMETHANE		0.5	UJ	R	0.5	U		0.5	U		0.5	U	
ETHYLBENZENE		0.5	UJ	R	0.5	U		0.5	U		0.5	U	
M+P-XYLENES		1	UJ	R	1	U		1	U		1	U	
METHYLENE CHLORIDE		0.5	UJ	R	0.5	U		0.5	U		0.5	U	
O-XYLENE		0.5	UJ	R	0.5	U		0.5	U		0.5	U	
TETRACHLOROETHENE		0.5	UJ	R	0.5	U		0.5	U		0.5	U	
TOLUENE		0.5	UJ	R	0.5	U		0.5	U		0.5	U	
TRANS-1,2-DICHLOROETHENE		0.5	UJ	R	0.5	U		0.5	U		0.5	U	
TRICHLOROETHENE		0.5	UJ	R	0.5	U		0.5	U		0.5	U	
TRICHLOROFLUOROMETHANE		0.5	UJ	R	0.5	U		0.5	U		0.5	U	
VINYL CHLORIDE		0.5	UJ	R	0.5	U		0.5	U		0.5	U	

PROJ_NO: 02750	NSAMPLE	FT-TB01-20111007		
SDG: C4195	LAB_ID	C4195-01		
FRACTION: OV	SAMP_DATE	10/7/2011		
MEDIA: WATER	QC_TYPE	NM		
	UNITS	UG/L		
	PCT_SOLIDS	0.0		
	DUP_OF			
PARAMETER		RESULT	VQL	QLCD
1,1,1-TRICHLOROETHANE		0.5	U	
1,1,2,2-TETRACHLOROETHANE		0.5	U	
1,1,2-TRICHLOROETHANE		0.5	U	
1,1-DICHLOROETHANE		0.5	U	
1,1-DICHLOROETHENE		0.5	U	
1,2-DICHLOROETHANE		0.5	U	
2-BUTANONE		2.5	U	
ACETONE		2.5	U	
BENZENE		0.5	U	
CIS-1,2-DICHLOROETHENE		0.5	U	
DICHLORODIFLUOROMETHANE		0.5	U	
ETHYLBENZENE		0.5	U	
M+P-XYLENES		1	U	
METHYLENE CHLORIDE		0.5	U	
O-XYLENE		0.5	U	
TETRACHLOROETHENE		0.5	U	
TOLUENE		0.5	U	
TRANS-1,2-DICHLOROETHENE		0.5	U	
TRICHLOROETHENE		0.5	U	
TRICHLOROFLUOROMETHANE		0.5	U	
VINYL CHLORIDE		0.5	U	

Tetra Tech NUS **INTERNAL CORRESPONDENCE**

TO:	**D. BRAYACK**	**DATE:**	**DECEMBER 7, 2011**
FROM:	**MICHELLE L. ALLEN**	**COPIES:**	**DV FILE**

SUBJECT: **ORGANIC DATA VALIDATION – VOC**
NAVAL WEAPONS INDUSTRIAL RESERVE PLANT (NWIRP), CALVERTON
CTO WE63
SAMPLE DELIVERY GROUP (SDG) C4269

SAMPLES: 10/Aqueous/VOC

FT-GW430-2125	FT-GW430-3135	FT-GW430-4145
FT-GW430-5155	FT-GW430-6165	FT-GW430-7175
FT-MW01I-20111018	FT-MW01S-20111018	FT-MW03S-20111018
FT-TB02-20111007		

Overview

The sample set for NWIRP Calverton SDG C4269 consisted of nine (9) aqueous environmental samples and one (1) trip blank. All ten (10) aqueous samples were analyzed for select volatile organic compounds (VOC). No field duplicate sample pairs were associated with this sample delivery group (SDG).

The samples were collected by Tetra Tech on October 17 and 18, 2011 and analyzed by Chemtech. All analyses were conducted in accordance with EPA Method SW-846 8260B analytical and reporting protocols. The data contained in this SDG was validated with regard to the following parameters:

* Data completeness
* Hold times
* GC/MS System Tuning and Performance
  Initial/continuing calibrations
* Laboratory Method and Field Blank Results
  Surrogate Spike Recoveries
* Internal Standard Results
* Laboratory Control Sample Results
  Matrix Spike/Matrix Spike Duplicate Sample Results
* Compound Identification
* Compound Quantitation
* Detection Limits

The symbol (*) indicates that all quality control criteria were met for this parameter. Qualified analytical results are presented in Appendix A, results as reported by the laboratory are presented in Appendix B, Region II data validation forms are presented in Appendix C, and documentation supporting these findings is presented in Appendix D.

Volatiles (VOC)

The continuing calibration performed on instrument MSVOAG on 10/21/11 @ 14:00 had Percent Differences (%Ds) for dichlorodifluoromethane, trichlorofluoromethane, 1,1,1-trichloroethane, and a Percent Drift (%Drift) for acetone above the 20% quality control limits. Sample FT-TB02-20111007 was affected. The non-detected results reported for these compounds were qualified as estimated, (UJ).

The continuing calibration performed on instrument MSVOAG on 10/28/11 @ 18:03 had a %Drift for acetone above the 20% quality control limits. All samples with the exception of FT-TB02-20111007 were affected. The non-detected results reported for acetone in the affected samples were qualified as estimated, (UJ).

The surrogate spike compound, toluene-d8, had %Rs below the lower quality control limit in samples FT-GW430-3135, FT-GW430-4145, FT-GW430-5155, and FT-GW430-7175. The samples were reanalyzed outside of the 14 day holding time with acceptable surrogate recoveries. The initial analyses of the samples were used in the data validation because the samples were reanalyzed outside the holding time. In accordance with Region II guidance, the non-detected results would be rejected for a holding time noncompliance. Only non-detected results were reported for the target compounds in the affected samples and these non-detects were qualified as estimated, (UJ).

Additional Comments

The 14 day analytical holding time was exceeded in reanalyses of samples FT-GW430-3135, FT-GW430-4145, FT-GW430-5155, and FT-GW430-7175. No action was necessary because the results from these analyses were not used in the data validation.

The %Rs for methylene chloride, cis-1,2-dichloroethene, benzene, and trichloroethene in the Matrix Spike (MS) and the Matrix Spike Duplicate (MSD) samples were above the upper quality control limits. No action was taken because the MS/MSD sample was not a sample from this SDG.

Non-detected results are reported to the Limit of Detection (LOD).

EXECUTIVE SUMMARY

Laboratory Performance Issues: Holding times were exceeded for the reanalyses of several samples. Continuing calibration %Ds and %Drifts exceeded the 20% quality control limit.

Other Factors Affecting Data Quality: Several samples had noncompliant surrogate %Rs. The MS/MSD %Rs for some target compounds were high.

The data for these analyses were reviewed with reference to the SOP #HW-24 Revision #2, USEPA Region II Hazardous Waste Support Branch Validating Volatile Organic Compounds by Gas Chromatography/Mass Spectrometry SW-846 Method 8260B (August 2008), and the Department of Defense (DoD) document entitled "Quality Systems Manual (QSM) for Environmental Laboratories" (April 2009).

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Michelle L. Allen
Chemist/Data Validator

TetraTech NUS
Joseph A. Samchuck
Data Validation Quality Assurance Officer

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Appendix A

Qualified Analytical Results

Qualifier Codes:

A = Lab Blank Contamination
B = Field Blank Contamination
C = Calibration Noncompliance (i.e., % RSDs, %Ds, ICVs, CCVs, RRFs, etc.)
C01 = GC/MS Tuning Noncompliance
D = MS/MSD Recovery Noncompliance
E = LCS/LCSD Recovery Noncompliance
F = Lab Duplicate Imprecision
G = Field Duplicate Imprecision
H = Holding Time Exceedance
I = ICP Serial Dilution Noncompliance
J = ICP PDS Recovery Noncompliance; MSA's $r < 0.995$
K = ICP Interference - includes ICS % R Noncompliance
L = Instrument Calibration Range Exceedance
M = Sample Preservation Noncompliance
N = Internal Standard Noncompliance
N01 = Internal Standard Recovery Noncompliance Dioxins
N02 = Recovery Standard Noncompliance Dioxins
N03 = Clean-up Standard Noncompliance Dioxins
O = Poor Instrument Performance (i.e., base-time drifting)
P = Uncertainty near detection limit (< 2 x IDL for inorganics and <CRQL for organics)
Q = Other problems (can encompass a number of issues; i.e.chromatography,interferences, etc.)
R = Surrogates Recovery Noncompliance
S = Pesticide/PCB Resolution
T = % Breakdown Noncompliance for DDT and Endrin
U = RPD between columns/detectors >40% for positive results determined via GC/HPLC
V = Non-linear calibrations; correlation coefficient $r < 0.995$
W = EMPC result
X = Signal to noise response drop
Y = Percent solids <30%
Z = Uncertainty at 2 sigma deviation is less than sample activity
Z1 = Tentatively Identified Compound considered presumptively present
Z2 = Tentatively Identified Compound column bleed

PROJ_NO: 02750	NSAMPLE	FT-GW430-2125			FT-GW430-3135			FT-GW430-4145			FT-GW430-5155		
SDG: C4269	LAB_ID	C4269-07			C4269-06			C4269-05			C4269-04		
FRACTION: OV	SAMP_DATE	10/17/2011			10/17/2011			10/17/2011			10/17/2011		
MEDIA: WATER	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,1,1-TRICHLOROETHANE		0.5	U		0.5	UJ	R	0.5	UJ	R	0.5	UJ	R
1,1,2,2-TETRACHLOROETHANE		0.5	U		0.5	UJ	R	0.5	UJ	R	0.5	UJ	R
1,1,2-TRICHLOROETHANE		0.5	U		0.5	UJ	R	0.5	UJ	R	0.5	UJ	R
1,1-DICHLOROETHANE		0.5	U		0.5	UJ	R	0.5	UJ	R	0.5	UJ	R
1,1-DICHLOROETHENE		0.5	U		0.5	UJ	R	0.5	UJ	R	0.5	UJ	R
1,2-DICHLOROETHANE		0.5	U		0.5	UJ	R	0.5	UJ	R	0.5	UJ	R
2-BUTANONE		2.5	U		2.5	UJ	R	2.5	UJ	R	2.5	UJ	R
ACETONE		2.5	UJ	C	2.5	UJ	CR	2.5	UJ	CR	2.5	UJ	CR
BENZENE		0.5	U		0.5	UJ	R	0.5	UJ	R	0.5	UJ	R
CIS-1,2-DICHLOROETHENE		0.5	U		0.5	UJ	R	0.5	UJ	R	0.5	UJ	R
DICHLORODIFLUOROMETHANE		0.5	U		0.5	UJ	R	0.5	UJ	R	0.5	UJ	R
ETHYLBENZENE		0.5	U		0.5	UJ	R	0.5	UJ	R	0.5	UJ	R
M+P-XYLENES		1	U		1	UJ	R	1	UJ	R	1	UJ	R
METHYLENE CHLORIDE		0.5	U		0.5	UJ	R	0.5	UJ	R	0.5	UJ	R
O-XYLENE		0.5	U		0.5	UJ	R	0.5	UJ	R	0.5	UJ	R
TETRACHLOROETHENE		0.5	U		0.5	UJ	R	0.5	UJ	R	0.5	UJ	R
TOLUENE		0.5	U		0.5	UJ	R	0.5	UJ	R	0.5	UJ	R
TRANS-1,2-DICHLOROETHENE		0.5	U		0.5	UJ	R	0.5	UJ	R	0.5	UJ	R
TRICHLOROETHENE		0.5	U		0.5	UJ	R	0.5	UJ	R	0.5	UJ	R
TRICHLOROFLUOROMETHANE		0.5	U		0.5	UJ	R	0.5	UJ	R	0.5	UJ	R
VINYL CHLORIDE		0.5	U		0.5	UJ	R	0.5	UJ	R	0.5	UJ	R

PROJ_NO: 02750	NSAMPLE	FT-GW430-6165			FT-GW430-7175			FT-MW01I-20111018			FT-MW01S-20111018		
SDG: C4269	LAB_ID	C4269-03			C4269-02			C4269-10			C4269-09		
FRACTION: OV	SAMP_DATE	10/17/2011			10/17/2011			10/18/2011			10/18/2011		
MEDIA: WATER	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,1,1-TRICHLOROETHANE		0.5	U		0.5	UJ	R	0.5	U		0.5	U	
1,1,2,2-TETRACHLOROETHANE		0.5	U		0.5	UJ	R	0.5	U		0.5	U	
1,1,2-TRICHLOROETHANE		0.5	U		0.5	UJ	R	0.5	U		0.5	U	
1,1-DICHLOROETHANE		0.5	U		0.5	UJ	R	0.5	U		0.5	U	
1,1-DICHLOROETHENE		0.5	U		0.5	UJ	R	0.5	U		0.5	U	
1,2-DICHLOROETHANE		0.5	U		0.5	UJ	R	0.5	U		0.5	U	
2-BUTANONE		2.5	U		2.5	UJ	R	2.5	U		2.5	U	
ACETONE		2.5	UJ	C	2.5	UJ	CR	2.5	UJ	C	2.5	UJ	C
BENZENE		0.5	U		0.5	UJ	R	0.5	U		0.5	U	
CIS-1,2-DICHLOROETHENE		0.5	U		0.5	UJ	R	0.5	U		0.5	U	
DICHLORODIFLUOROMETHANE		0.5	U		0.5	UJ	R	0.5	U		0.5	U	
ETHYLBENZENE		0.5	U		0.5	UJ	R	0.5	U		0.5	U	
M+P-XYLENES		1	U		1	UJ	R	1	U		1	U	
METHYLENE CHLORIDE		0.5	U		0.5	UJ	R	0.5	U		0.5	U	
O-XYLENE		0.5	U		0.5	UJ	R	0.5	U		0.5	U	
TETRACHLOROETHENE		0.5	U		0.5	UJ	R	0.5	U		0.5	U	
TOLUENE		0.5	U		0.5	UJ	R	0.5	U		0.5	U	
TRANS-1,2-DICHLOROETHENE		0.5	U		0.5	UJ	R	0.5	U		0.5	U	
TRICHLOROETHENE		0.5	U		0.5	UJ	R	0.5	U		0.5	U	
TRICHLOROFLUOROMETHANE		0.5	U		0.5	UJ	R	0.5	U		0.5	U	
VINYL CHLORIDE		0.5	U		0.5	UJ	R	0.5	U		0.5	U	

PROJ_NO: 02750	NSAMPLE	FT-MW03S-20111018			FT-TB02-20111007		
SDG: C4269	LAB_ID	C4269-08			C4269-01		
FRACTION: OV	SAMP_DATE	10/18/2011			10/7/2011		
MEDIA: WATER	QC_TYPE	NM			NM		
	UNITS	UG/L			UG/L		
	PCT_SOLIDS	0.0			-900.0		
	DUP_OF						
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,1,1-TRICHLOROETHANE		0.5	U		0.5	UJ	C
1,1,2,2-TETRACHLOROETHANE		0.5	U		0.5	U	
1,1,2-TRICHLOROETHANE		0.5	U		0.5	U	
1,1-DICHLOROETHANE		0.5	U		0.5	U	
1,1-DICHLOROETHENE		0.5	U		0.5	U	
1,2-DICHLOROETHANE		0.5	U		0.5	U	
2-BUTANONE		2.5	U		2.5	U	
ACETONE		2.5	UJ	C	2.5	UJ	C
BENZENE		0.5	U		0.5	U	
CIS-1,2-DICHLOROETHENE		0.5	U		0.5	U	
DICHLORODIFLUOROMETHANE		0.5	U		0.5	UJ	C
ETHYLBENZENE		0.5	U		0.5	U	
M+P-XYLENES		1	U		1	U	
METHYLENE CHLORIDE		0.5	U		0.5	U	
O-XYLENE		0.5	U		0.5	U	
TETRACHLOROETHENE		0.5	U		0.5	U	
TOLUENE		0.5	U		0.5	U	
TRANS-1,2-DICHLOROETHENE		0.5	U		0.5	U	
TRICHLOROETHENE		3.2			0.5	U	
TRICHLOROFLUOROMETHANE		0.5	U		0.5	UJ	C
VINYL CHLORIDE		0.5	U		0.5	U	

Tetra Tech NUS **INTERNAL CORRESPONDENCE**

TO:	**D. BRAYACK**	**DATE:**	**January 6, 2012**
FROM:	**M. CARSON**	**COPIES:**	**DV FILE**

SUBJECT: **INORGANIC DATA VALIDATION – TAL METALS, CYANIDE, HEXAVALENT CHROMIUM, AND TRIVALENT CHROMIUM**
NWIRP CALVERTON CTO WE63
SAMPLE DELIVERY GROUP (SDG) C4270

SAMPLES: 7/Soil/

FT-SB401-0608	FT-SB402-0608	FT-SB403-0608
FT-SB406-0406	FT-SB407-0608	FT-SB413-0002
FT-SBDUP01-20111018		

Overview

The sample set for NWIRP Calverton, CTO WE63, SDG C4270 contained seven (7) soil samples. All samples were analyzed for target analyte list (TAL) metals, cyanide, hexavalent chromium, and trivalent chromium. This SDG contained one field duplicate pair: FT-SBDUP01-20111018/ FT-SB403-0608.

The samples were collected on October 18th and 19th, 2011 and analyzed by Chemtech. Analyses were conducted in accordance with Naval Facilities Engineering Service Center (NFESC) Quality Assurance/Quality Control (QA/QC) criteria. Metals analyses were conducted using method 6010B. Mercury analyses were conducted using method 7471A.Cyanide analyses were conducted using method 9012B. Hexavalent chromium analyses were conducted using method 3060A/7196A. Trivalent chromium results were calculated values. The data contained in this SDG were validated with regard to the following parameters:

- * Data completeness
- * Holding times
- Initial/Continuing Calibrations
- Laboratory Method Blank Results
- * Laboratory Control/Laboratory Control Duplicate Sample Recoveries
- * Matrix Spike/Matrix Spike Duplicate Recoveries
- * Field Duplicate Recoveries
- * Analyte Identification
- * Detection Limits

The symbol (*) indicates that all quality control criteria were met for this parameter. Qualified analytical results are presented in Appendix A, results as reported by the laboratory are presented in Appendix B, Region II data validation forms are presented in Appendix C, and documentation supporting these findings is presented in Appendix D.

TAL Metals:

The following contaminants were detected in the laboratory preparation and calibration blanks at the following maximum concentrations:

Analyte	Maximum Concentration	Action Level
Sodium [1]	137.4 mg/kg	687.0 mg/kg
Copper [2]	8.2 ug/L	4.1 mg/kg
Lead [2]	2.8 ug/L	1.4 mg/kg
Thallium [2]	6.4 ug/L	3.2 mg/kg

[1] Maximum concentration found in preparation blank affection all samples.
[2] Maximum concentration found in calibration blank affection all samples.

An action level of 5X the maximum contaminant level has been used to evaluate sample data for blank contamination. Sample aliquot, percent solids and dilution factors, if applicable, were taken into consideration when evaluating for blank contamination. Sample results less than the blank action level were qualified as non-detected (U).

The CRDL standard analyzed on 10/24/11 had a percent recovery <70%for mercury. All samples were affected. Positive results <2X CRDL were qualified as estimated (J) and non-detected results were qualified as estimated (UJ).

Additional Comments

The CRDL standard analyzed on 10/27/11 had a percent recovery > 130% for aluminum and copper. All samples in the SDG were affected. No validation action was taken as sample results were >2X CRDL.

Trivalent chromium results were calculated by subtracting the hexavalent chromium results from the total chromium results.

EXECUTIVE SUMMARY

Laboratory Performance Issues: Preparation and calibration blank contamination resulted in the qualification of sample results as non-detected. CRDL standard non-compliances for mercury resulted in the qualification of sample results.

Other Factors Affecting Data Quality: None.

The data for these analyses were reviewed with reference (to the extent applicable) to the Region II "Validation of Metals for the Contract Laboratory Program (CLP) based on ILMO5.3 (SOP Revision 13)",September 2006 and the Department of Defense (DoD) document entitled "Quality Systems Manual (QSM) for Environmental Laboratories", April, 2009.

TO: D. Brayack
DATE: 1/6/2012
SDG: C4270
PAGE: 3

The text of this report has been formulated to address only those problem areas affecting data quality.

Megan Carson

Tetra Tech NUS
Megan Carson
Chemist/Data Validator

Tetra Tech NUS
Joseph A. Samchuck
Data Validation Quality Assurance Officer

Attachments:
1. Appendix A - Qualified Analytical Results
2. Appendix B - Results as Reported by the Laboratory
3. Appendix C – Region II Data Validation Forms
4. Appendix D - Support Documentation

Appendix A

Qualified Analytical Results

PROJ_NO: 02750	NSAMPLE	FT-SB401-0608			FT-SB402-0608			FT-SB403-0608			FT-SB406-0406		
SDG: C4270	LAB_ID	C4270-01			C4270-09			C4270-08			C4270-02		
FRACTION: M	SAMP_DATE	10/18/2011			10/19/2011			10/18/2011			10/18/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	MG/KG			MG/KG			MG/KG			MG/KG		
	PCT_SOLIDS	92.9			97.3			96.2			96.4		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
ALUMINUM		4260			511			525			600		
ANTIMONY		1.245	U		0.975	U		1.16	U		0.955	U	
ARSENIC		1.18			0.783			0.383	J	P	0.38	U	
BARIUM		10.8			1.39	J	P	1.75	J	P	1.62	J	P
BERYLLIUM		0.107	J	P	0.115	U		0.14	U		0.115	U	
CADMIUM		0.201	J	P	0.057	J	P	0.14	U		0.051	J	P
CALCIUM		75.3	J	P	48.3	J	P	76.4	J	P	33.8	J	P
CHROMIUM		4.43			1.63			1.06			1.59		
COBALT		1.24	J	P	0.585	U		0.695	U		0.457	J	P
COPPER		2.82	U	A	1.7	U	A	1.9	U	A	1.9	U	A
IRON		4380			1240			814			1040		
LEAD		2.66			0.914	U	A	0.809	U	A	1.09	U	A
MAGNESIUM		501			82.1			69.7	J	P	69.8	J	P
MANGANESE		34.7			9.97			5.28			8.69		
MERCURY		0.006	J	CP	0.005	UJ	C	0.005	UJ	C	0.005	UJ	C
NICKEL		2.18			0.583	J	P	0.563	J	P	0.424	J	P
POTASSIUM		82.8	J	P	38.95	U		46.4	U		38.15	U	
SELENIUM		0.55	J	P	0.39	U		0.465	U		0.38	U	
SILVER		0.25	U		0.195	U		0.23	U		0.19	U	
SODIUM		98.7	U	A	85.2	U	A	113	U	A	66.2	U	A
THALLIUM		0.995	U		0.78	U		0.93	U		0.765	U	
VANADIUM		7.35			2.3			1.38	J	P	2.24		
ZINC		10.5			4.24			4.75			4.03		

PROJ_NO: 02750	NSAMPLE	FT-SB407-0608			FT-SB413-0002			FT-SBDUP01-20111018		
SDG: C4270	LAB_ID	C4270-03			C4270-14			C4270-12		
FRACTION: M	SAMP_DATE	10/18/2011			10/19/2011			10/18/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM		
	UNITS	MG/KG			MG/KG			MG/KG		
	PCT_SOLIDS	92.2			92.1			96.3		
	DUP_OF							FT-SB403-0608		
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
ALUMINUM		5820			3810			584		
ANTIMONY		1.355	U		1.305	U		1.15	U	
ARSENIC		1.58			0.826	J	P	0.598	J	P
BARIUM		9.66			7.63			1.71	J	P
BERYLLIUM		0.125	J	P	0.085	J	P	0.14	U	
CADMIUM		0.185	J	P	0.147	J	P	0.14	U	
CALCIUM		68.4	J	P	841			80.3	J	P
CHROMIUM		5.87			3.49			2.71		
COBALT		1.14	J	P	0.642	J	P	0.69	U	
COPPER		2.84	U	A	3.27	U	A	2.07	U	A
IRON		4420			3110			957		
LEAD		3.27			3.99			0.92	U	A
MAGNESIUM		376			125			81.4	J	P
MANGANESE		19.1			17.2			5.34		
MERCURY		0.013	J	C	0.021	J	C	0.005	UJ	C
NICKEL		2.11	J	P	1.74	J	P	0.522	J	P
POTASSIUM		31.3	J	P	52	U		45.95	U	
SELENIUM		0.54	U		0.52	U		0.46	U	
SILVER		0.27	U		0.26	U		0.23	U	
SODIUM		93.4	U	A	129	U	A	106	U	A
THALLIUM		1.085	U		1.045	U		0.92	U	
VANADIUM		9.26			5.6			2.26		
ZINC		9.69			10.9			4.24		

PROJ_NO: 02750	NSAMPLE	FT-SB401-0608			FT-SB402-0608			FT-SB403-0608			FT-SB406-0406		
SDG: C4270	LAB_ID	C4270-01			C4270-09			C4270-08			C4270-02		
FRACTION: MISC	SAMP_DATE	10/18/2011			10/19/2011			10/18/2011			10/18/2011		
MEDIA: SOIL	QC_TYPE	NM			NM			NM			NM		
	UNITS	MG/KG			MG/KG			MG/KG			MG/KG		
	PCT_SOLIDS	92.9			97.3			96.2			96.4		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
CHROMIUM III		4.43	J	G	1.63	J	G	1.06	J	G	1.59	J	G
CYANIDE		0.135	U		0.13	U		0.13	U		0.13	U	
HEXAVALENT CHROMIUM		0.215	U		0.205	U		0.205	U		0.205	U	

PROJ_NO: 02750 SDG: C4270 FRACTION: MISC MEDIA: SOIL	NSAMPLE	FT-SB407-0608			FT-SB413-0002			FT-SBDUP01-20111018		
	LAB_ID	C4270-03			C4270-14			C4270-12		
	SAMP_DATE	10/18/2011			10/19/2011			10/18/2011		
	QC_TYPE	NM			NM			NM		
	UNITS	MG/KG			MG/KG			MG/KG		
	PCT_SOLIDS	92.2			92.1			96.3		
	DUP_OF							FT-SB403-0608		
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
CHROMIUM III		5.78	J	G	3.49	J	G	2.71	J	G
CYANIDE		0.135	U		0.038	J	P	0.13	U	
HEXAVALENT CHROMIUM		0.09	J	P	0.215	U		0.205	U	

Tetra Tech NUS **INTERNAL CORRESPONDENCE**

TO:	**D. BRAYACK**	**DATE:**	**DECEMBER 12, 2011**
FROM:	**A. COGNETTI**	**COPIES:**	**DV FILE**

SUBJECT: **ORGANIC DATA VALIDATION – VOC**
NWIRP CALVERTON, CTO WE63
SAMPLE DELIVERY GROUP (SDG) C4354

SAMPLES: 13/Aqueous/VOC

FT-FB03-20111025	FT-GW433-4145	FT-GW433-5155
FT-GW433-5963	FT-GW433-7175	FT-GW435-2125
FT-GW4355-3135	FT-GW435-4145	FT-GW435-5155
FT-GW435-6165	FT-GW435-7175	FT-RB03-20111025
FT-TB04-20111011		

Overview

The sample set for NWIRP Calverton SDG C4354 consisted of ten (10) aqueous environmental samples, a field blank, a rinsate blank and a trip blank. All samples were analyzed for select volatile organic compounds (VOCs). There are no field duplicate sample pairs were associated with this SDG.

The samples were collected by Tetra Tech on October 11, 24 and 25, 2011 and analyzed by Chemtech. All analyses were conducted in accordance with EPA Method SW-846 8260B analytical and reporting protocols. The data contained in this SDG was validated with regard to the following parameters:

*	•	Data completeness
*	•	Hold times
*	•	GC/MS System Tuning and Performance
	•	Initial/continuing calibrations
*	•	Laboratory Method Blank Results
	•	Surrogate Spike Recoveries
*	•	Internal Standard Results
*	•	Matrix Spike/Matrix Spike Duplicate Results
*	•	Laboratory Control Sample/Laboratory Control Sample Duplicate Results
*	•	Field Duplicate Precision
*	•	Compound Identification
*	•	Compound Quantitation
*	•	Detection Limits

The symbol (*) indicates that all quality control criteria were met for this parameter. Qualified analytical results are presented in Appendix A, results as reported by the laboratory are presented in Appendix B, Region II data validation forms are presented in Appendix C, and documentation supporting these findings is presented in Appendix D.

VOCs

The continuing calibration percent drifts (%Ds) for dichlorodifluoromethane and acetone were greater than the 20% quality control limit on November 5, 2011 @ 1:54 on instrument MSVOAG. The nondetected dichlorodifluoromethane and acetone results were qualified as estimated (UJ) in the affected samples FT-TB04-20111011, FT-FB03-20111025, FT-GW435-5155, FT-GW433-4145, FT-GW433-7175, FT-GW433-

5155, FT-GW433-5963, FT-GW435-7175 and FT-GW435-2125.

The percent recoveries (%Rs) of surrogate toluene-d8 were less than the lower quality control limit but greater than 10% in samples FT-FB03-20111025, FT-GW435-5155, FT-GW433-4145, FT-GW433-7175, FT-GW433-5155, FT-GW433-5963, FT-GW435-7175, FT-GW435-2125 and FT-GW435-4145. The results were qualified as estimated (J) and (UJ), respectively in the affected samples.

Additional Comments

Positive results reported below the Limit of Quantitation (LOQ) but above the Method Detection Limit (MDL) were qualified as estimated, (J).

Non-detected results are reported to the Limit of Detection (LOD).

EXECUTIVE SUMMARY

Laboratory Performance Issues: The continuing calibration %Drifts were outside quality control limits for dichlorodifluoromethane and acetone resulting in the qualification of data. The %Rs of surrogate toluene-d8 were outside quality control limits in several samples.

Other Factors Affecting Data Quality: Positive results reported below the LOQ but above the MDL were qualified as estimated (J).

TO: D. Brayack
FROM: A. Cognetti
SDG: C4195
DATE: December 12, 2011

The data for these analyses were reviewed with reference to the EPA National Functional Guidelines for Organic Data Validation (10/99), SOP #HW-24 Revision #2, USEPA Region II Hazardous Waste Support Branch Validating Volatile Organic Compounds by Gas Chromatography/Mass Spectrometry SW-846 Method 8260B (August 2008) and the Department of Defense (DoD) document entitled "Quality Systems Manual (QSM) for Environmental Laboratories" (April 2009).

TetraTech NUS
Ann Cognetti
Chemist/Data Validator

TetraTech NUS
Joseph A. Samchuck
Data Validation Quality Assurance Officer

Attachments:
1. Appendix A - Qualified Analytical Results
2. Appendix B - Results as Reported by the Laboratory
3. Appendix C – Region II Data Validation Forms
4. Appendix D - Support Documentation

Appendix A

Qualified Analytical Results

Data Validation Qualifier Codes:

A = Lab Blank Contamination
B = Field Blank Contamination
C = Calibration Noncompliance (e.g. % RSDs, %Ds, ICVs, CCVs, RRFs, etc.)
C01 = GC/MS Tuning Noncompliance
D = MS/MSD Recovery Noncompliance
E = LCS/LCSD Recovery Noncompliance
F = Lab Duplicate Imprecision
G = Field Duplicate Imprecision
H = Holding Time Exceedance
I = ICP Serial Dilution Noncompliance
J = GFAA PDS - GFAA MSA's $r < 0.995$
K = ICP Interference - includes ICS % R Noncompliance
L = Instrument Calibration Range Exceedance
M = Sample Preservation Noncompliance
N = Internal Standard Noncompliance
N01 = Internal Standard Recovery Noncompliance Dioxins
N02 = Recovery Standard Noncompliance Dioxins
N03 = Clean-up Standard Noncompliance Dioxins
O = Poor Instrument Performance (e.g. base-line drifting)
P = Uncertainty near detection limit (< 2 x IDL for inorganics and <CRQL for organics)
Q = Other problems (can be any number of issues; e.g. poor chromatography,interferences, etc.)
R = Surrogates Recovery Noncompliance
S = Pesticide/PCB Resolution
T = % Breakdown Noncompliance for DDT and Endrin
U = % Difference between columns/detectors >25% for positive results determined via GC/HPLC
V = Non-linear calibrations; correlation coefficient $r < 0.995$
W = EMPC result
X = Signal to noise response drop
Y = Percent solids <30%
Z = Uncertainty at 2 sigma deviation is greater than sample activity

PROJ_NO: 02750	NSAMPLE	FT-FB03-20111025			FT-GW433-4145			FT-GW433-5155			FT-GW433-5963		
SDG: C4354	LAB_ID	C4354-09			C4354-02			C4354-04			C4354-05		
FRACTION: OV	SAMP_DATE	10/25/2011			10/24/2011			10/24/2011			10/24/2011		
MEDIA: WATER	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,1,1-TRICHLOROETHANE		0.5	UJ	R	0.5	UJ	R	0.5	UJ	R	0.5	UJ	R
1,1,2,2-TETRACHLOROETHANE		0.5	UJ	R	0.5	UJ	R	0.5	UJ	R	0.5	UJ	R
1,1,2-TRICHLOROETHANE		0.5	UJ	R	0.5	UJ	R	0.5	UJ	R	0.5	UJ	R
1,1-DICHLOROETHANE		0.5	UJ	R	0.5	UJ	R	0.5	UJ	R	0.5	UJ	R
1,1-DICHLOROETHENE		0.5	UJ	R	0.5	UJ	R	0.5	UJ	R	0.5	UJ	R
1,2-DICHLOROETHANE		0.5	UJ	R	0.5	UJ	R	0.5	UJ	R	0.5	UJ	R
2-BUTANONE		2.5	UJ	R	2.5	UJ	R	2.5	UJ	R	2.5	UJ	R
ACETONE		2.5	UJ	CR	2.5	UJ	CR	2.5	UJ	CR	2.5	UJ	CR
BENZENE		0.5	UJ	R	0.5	UJ	R	0.5	UJ	R	0.5	UJ	R
CIS-1,2-DICHLOROETHENE		0.5	UJ	R	0.5	UJ	R	0.5	UJ	R	0.5	UJ	R
DICHLORODIFLUOROMETHANE		0.5	UJ	CR	0.5	UJ	CR	0.5	UJ	CR	0.5	UJ	CR
ETHYLBENZENE		0.5	UJ	R	0.5	UJ	R	0.5	UJ	R	0.5	UJ	R
M+P-XYLENES		1	UJ	R	1	UJ	R	1	UJ	R	1	UJ	R
METHYLENE CHLORIDE		0.5	UJ	R	0.5	UJ	R	0.5	UJ	R	0.5	UJ	R
O-XYLENE		0.5	UJ	R	0.5	UJ	R	0.5	UJ	R	0.5	UJ	R
TETRACHLOROETHENE		0.5	UJ	R	0.5	UJ	R	0.5	UJ	R	0.5	UJ	R
TOLUENE		0.5	UJ	R	0.5	UJ	R	0.5	UJ	R	0.5	UJ	R
TRANS-1,2-DICHLOROETHENE		0.5	UJ	R	0.5	UJ	R	0.5	UJ	R	0.5	UJ	R
TRICHLOROETHENE		0.5	UJ	R	0.5	UJ	R	0.5	UJ	R	0.5	UJ	R
TRICHLOROFLUOROMETHANE		0.5	UJ	R	0.5	UJ	R	0.5	UJ	R	0.5	UJ	R
VINYL CHLORIDE		0.5	UJ	R	0.5	UJ	R	0.5	UJ	R	0.5	UJ	R

PROJ_NO: 02750	NSAMPLE	FT-GW433-7175			FT-GW435-2125			FT-GW435-3135			FT-GW435-4145		
SDG: C4354	LAB_ID	C4354-03			C4354-07			C4354-08			C4354-15		
FRACTION: OV	SAMP_DATE	10/24/2011			10/24/2011			10/24/2011			10/25/2011		
MEDIA: WATER	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,1,1-TRICHLOROETHANE		0.5	UJ	R	0.5	UJ	R	0.5	U		0.5	UJ	R
1,1,2,2-TETRACHLOROETHANE		0.5	UJ	R	0.5	UJ	R	0.5	U		0.5	UJ	R
1,1,2-TRICHLOROETHANE		0.5	UJ	R	0.5	UJ	R	0.5	U		0.5	UJ	R
1,1-DICHLOROETHANE		0.5	UJ	R	0.5	UJ	R	1.1			0.5	UJ	R
1,1-DICHLOROETHENE		0.5	UJ	R	0.5	UJ	R	0.5	U		0.5	UJ	R
1,2-DICHLOROETHANE		0.5	UJ	R	0.5	UJ	R	0.5	U		0.5	UJ	R
2-BUTANONE		2.5	UJ	R	2.5	UJ	R	6.2			2.5	UJ	R
ACETONE		2.5	UJ	CR	2.5	UJ	CR	4.1	J	P	2.5	UJ	R
BENZENE		0.5	UJ	R	0.5	UJ	R	0.5	U		0.5	UJ	R
CIS-1,2-DICHLOROETHENE		0.5	UJ	R	0.5	UJ	R	0.5	U		0.5	UJ	R
DICHLORODIFLUOROMETHANE		0.5	UJ	CR	0.5	UJ	CR	0.5	U		0.5	UJ	R
ETHYLBENZENE		0.5	UJ	R	0.5	UJ	R	0.5	U		0.5	UJ	R
M+P-XYLENES		1	UJ	R	1	UJ	R	1	U		1	UJ	R
METHYLENE CHLORIDE		0.5	UJ	R	0.5	UJ	R	0.5	U		0.5	UJ	R
O-XYLENE		0.5	UJ	R	0.5	UJ	R	0.5	U		0.5	UJ	R
TETRACHLOROETHENE		0.5	UJ	R	0.5	UJ	R	0.5	U		0.5	UJ	R
TOLUENE		0.5	UJ	R	0.5	UJ	R	0.5	U		0.5	UJ	R
TRANS-1,2-DICHLOROETHENE		0.5	UJ	R	0.5	UJ	R	0.5	U		0.5	UJ	R
TRICHLOROETHENE		0.5	UJ	R	0.5	UJ	R	16			0.5	UJ	R
TRICHLOROFLUOROMETHANE		0.5	UJ	R	0.5	UJ	R	0.5	U		0.5	UJ	R
VINYL CHLORIDE		0.5	UJ	R	0.5	UJ	R	0.5	U		0.5	UJ	R

PROJ_NO: 02750	NSAMPLE	FT-GW435-5155			FT-GW435-6165			FT-GW435-7175			FT-RB03-20111025		
SDG: C4354	LAB_ID	C4354-12			C4354-11			C4354-06			C4354-10		
FRACTION: OV	SAMP_DATE	10/25/2011			10/25/2011			10/24/2011			10/25/2011		
MEDIA: WATER	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,1,1-TRICHLOROETHANE		0.5	UJ	R	0.5	U		0.5	UJ	R	0.5	U	
1,1,2,2-TETRACHLOROETHANE		0.5	UJ	R	0.5	U		0.5	UJ	R	0.5	U	
1,1,2-TRICHLOROETHANE		0.5	UJ	R	0.5	U		0.5	UJ	R	0.5	U	
1,1-DICHLOROETHANE		0.5	UJ	R	0.5	U		0.5	UJ	R	0.5	U	
1,1-DICHLOROETHENE		0.5	UJ	R	0.5	U		0.5	UJ	R	0.5	U	
1,2-DICHLOROETHANE		0.5	UJ	R	0.5	U		0.5	UJ	R	0.5	U	
2-BUTANONE		2.5	UJ	R	2.5	U		2.5	UJ	R	2.5	U	
ACETONE		2.5	UJ	CR	1.4	J	P	2.5	UJ	CR	2.5	U	
BENZENE		0.5	UJ	R	0.5	U		0.5	UJ	R	0.5	U	
CIS-1,2-DICHLOROETHENE		0.5	UJ	R	0.5	U		0.5	UJ	R	0.5	U	
DICHLORODIFLUOROMETHANE		0.5	UJ	CR	0.5	U		0.5	UJ	CR	0.5	U	
ETHYLBENZENE		0.5	UJ	R	0.5	U		0.5	UJ	R	0.5	U	
M+P-XYLENES		1	UJ	R	1	U		1	UJ	R	1	U	
METHYLENE CHLORIDE		0.5	UJ	R	0.5	U		0.5	UJ	R	0.5	U	
O-XYLENE		0.5	UJ	R	0.5	U		0.5	UJ	R	0.5	U	
TETRACHLOROETHENE		0.5	UJ	R	0.5	U		0.5	UJ	R	0.5	U	
TOLUENE		0.5	UJ	R	0.5	U		0.5	UJ	R	0.5	U	
TRANS-1,2-DICHLOROETHENE		0.5	UJ	R	0.5	U		0.5	UJ	R	0.5	U	
TRICHLOROETHENE		0.5	UJ	R	0.5	U		0.5	UJ	R	0.5	U	
TRICHLOROFLUOROMETHANE		0.5	UJ	R	0.5	U		0.5	UJ	R	0.5	U	
VINYL CHLORIDE		0.5	UJ	R	0.5	U		0.5	UJ	R	0.5	U	

PROJ_NO: 02750	NSAMPLE	FT-TB04-20111011		
SDG: C4354	LAB_ID	C4354-01		
FRACTION: OV	SAMP_DATE	10/24/2011		
MEDIA: WATER	QC_TYPE	NM		
	UNITS	UG/L		
	PCT_SOLIDS	0.0		
	DUP_OF			
PARAMETER		RESULT	VQL	QLCD
1,1,1-TRICHLOROETHANE		0.5	U	
1,1,2,2-TETRACHLOROETHANE		0.5	U	
1,1,2-TRICHLOROETHANE		0.5	U	
1,1-DICHLOROETHANE		0.5	U	
1,1-DICHLOROETHENE		0.5	U	
1,2-DICHLOROETHANE		0.5	U	
2-BUTANONE		2.5	U	
ACETONE		2.5	UJ	C
BENZENE		0.5	U	
CIS-1,2-DICHLOROETHENE		0.5	U	
DICHLORODIFLUOROMETHANE		0.5	UJ	C
ETHYLBENZENE		0.5	U	
M+P-XYLENES		1	U	
METHYLENE CHLORIDE		0.5	U	
O-XYLENE		0.5	U	
TETRACHLOROETHENE		0.5	U	
TOLUENE		0.5	U	
TRANS-1,2-DICHLOROETHENE		0.5	U	
TRICHLOROETHENE		0.5	U	
TRICHLOROFLUOROMETHANE		0.5	U	
VINYL CHLORIDE		0.5	U	

Tetra Tech NUS **INTERNAL CORRESPONDENCE**

TO:	**D. BRAYACK**	**DATE:**	**JANUARY 5, 2012**
FROM:	**JOSEPH KALINYAK**	**COPIES:**	**DV FILE**
SUBJECT:	**ORGANIC DATA VALIDATION – VOC NWIRP CALVERTON CTO WE63 SDG C4303**		
SAMPLES:	19 / Aqueous / VOC		

FT-DUP03-20111020	FT-DUP04-20111021	FT-FB02-20111020
FT-GW431-2125	FT-GW431-3135	FT-GW431-4145
FT-GW431-5155	FT-GW431-6165	FT-GW431-7175
FT-GW432-2630	FT-GW432-3135	FT-GW432-4145
FT-GW432-5155	FT-GW432-6165	FT-GW432-7175
FT-GW433-2630	FT-GW433-3135	FT-RB02-20111020
FT-TB03-20111011		

Overview

The sample set for NWIRP Calverton, CTO WE63, SDG C4303 consisted of nineteen (19) aqueous samples including one (1) aqueous trip blank sample, one (1) aqueous rinse blank sample, and one (1) aqueous field blank sample. All aqueous samples were analyzed for a select list of volatile organic compounds (VOC). Two (2) field duplicate sample pairs were included in this Sample Delivery Group (SDG); FT-DUP03-20111020 / FT-GW431-5155 and FT-DUP04-20111021 / FT-GW432-5155.

The samples were collected by Tetra Tech on October 20 and 21, 2011 and analyzed by ChemTech laboratory. All analyses were conducted in accordance with EPA Method SW-846 8260B analytical and reporting protocols. The data contained in this SDG were validated with regard to the following parameters:

*	•	Data completeness
*	•	Hold times
*	•	GC/MS System Tuning and Performance
	•	Initial/continuing calibrations
*	•	Laboratory Blank Results
	•	Laboratory Control Sample/Laboratory Control Sample Duplicate Recoveries
*	•	Matrix Spike/Matrix Spike Duplicate Recoveries
	•	Surrogate Spike Recoveries
*	•	Internal Standard Recoveries
	•	Field Duplicate Precision
*	•	Compound Identification
*	•	Compound Quantitation
*	•	Detection Limits

The symbol (*) indicates that all quality control criteria were met for this parameter. Qualified analytical results are presented in Appendix A, results as reported by the laboratory are presented in Appendix B, Region II data validation forms are presented in Appendix C, and documentation supporting these findings is presented in Appendix D.

VOC

The continuing calibration verification (CCV) percent differences (%D) were greater than the 20% quality control limit for dichlorodifluoromethane, 2-butanone, tetrachloroethene, acetone, methylene chloride, and benzene for instrument MSVOAG on 11/03/11 @ 02:20.

Affected samples:

FT-DUP03-20111020	FT-FB02-20111020	FT-GW431-2125
FT-GW431-4145	FT-GW431-5155	FT-GW431-6165
FT-GW431-7175	FT-GW432-2630	FT-GW432-3135
FT-GW432-4145	FT-GW432-5155	FT-GW432-7175
FT-RB02-20111020		

Action: All aforementioned sample non-detected results for dichlorodifluoromethane, 2-butanone, tetrachloroethene, acetone, methylene chloride, and benzene were qualified estimated, (UJ).

The CCV %Ds were greater than the 20% quality control limit for acetone, methylene chloride, and 2-butanone for instrument MSVOAG on 11/03/11 @ 15:43.

Affected samples: FT-GW432-6165 and FT-GW431-3135

Action: The sample FT-GW432-6165 positive and non-detected results for acetone, methylene chloride, and 2-butanone were qualified estimated, (J) and (UJ), respectively.

The CCV %D was greater than the 20% quality control limit for dichlorodifluoromethane for instrument MSVOAG on 11/04/11 @ 09:58.

Affected samples:

FT-GW431-3135RE ("..RE" indicates re-analysis)	FT-DUP04-20111021
FT-GW433-2630	FT-GW433-3135

Action: All aforementioned sample positive and non-detected results for dichlorodifluoromethane were qualified estimated, (J) and (UJ), respectively.

The surrogate (system monitoring compound) percent recoveries (%R) for toluene-d8 (TOL) were less than the Department of Defense (DOD) quality control limit (85%-120%) for samples listed below.

Affected samples:

FT-DUP03-20111020	*FT-DUP04-20111021*	*FT-GW431-2125*
FT-GW431-3135	*FT-GW431-3135RE*	*FT-GW431-4145*
FT-GW431-5155	*FT-GW431-6165*	*FT-GW431-7175*
FT-GW432-2630	*FT-GW432-3135*	*FT-GW432-4145*
FT-GW432-5155	*FT-GW432-6165*	*FT-GW432-7175*
FT-GW433-2630	FT-GW433-3135	

Actions: Samples FT-DUP04-20111021 and FT-GW433-2630 were re-analyzed with surrogate %Rs that were still less than the quality control limit for TOL and were not validated or reported. Sample FT-GW431-3135 re-analysis had a significantly improved TOL %R although it was quality control limit non-compliant. Sample FT-GW433-3135 was re-analyzed with a quality control compliant surrogate TOL %R for the sample re-analysis. The sample FT-GW431-3135 re-analysis and FT-GW433-3135 re-analysis results were reported and validated. The positive and non-detected sample FT-GW431-3135 re-analysis analytes and the remaining positive and non-detected sample analyte results were qualified estimated, (J) and (UJ), respectively (fifteen (15) samples italicized above) for the surrogate TOL %R non-compliances.

The relative percent difference (RPD) was greater than the 30% quality control limit for methylene chloride for the field duplicate samples FT-DUP04-20111021 and FT-GW432-5155. The positive and non-detected methylene chloride results for the aforementioned samples were qualified estimated, (J) and (UJ), respectively.

Positive results below the limit of quantitation (LOQ) and above the method detection limit were qualified as estimated, (J), due to uncertainty near the detection limit.

Additional Comments

The laboratory control sample (LCS) %Rs were greater than the quality control limit for acetone, methylene chloride, 1,1-dichloroethane, cis-1,2-dichloroethene, 1,1,1-trichloroethane, and benzene for batch VBG1102W2 affecting samples listed below.

Affected samples:

FT-DUP03-20111020	FT-FB02-20111020	FT-GW431-2125
FT-GW431-4145	FT-GW431-5155	FT-GW431-6165
FT-GW431-7175	FT-GW432-2630	FT-GW432-3135
FT-GW432-4145	FT-GW432-5155	FT-GW432-7175
FT-RB02-20111020		

Actions: The VOC analyte acetone, methylene chloride, 1,1-dichloroethane, cis-1,2-dichloroethene, 1,1,1-trichloroethane, and benzene results for the aforementioned samples were all non-detected and therefore were not qualified.

Twenty-one (21) analytes were reported for VOCs.

Non-detected sample results were reported to the LOD.

Chloroform was identified by the laboratory in the Tentatively Identified Compound (TIC) report for the samples listed below.

Samples with chloroform identified in the TIC report

FT-DUP03-20111020	FT-DUP04-20111021	FT-GW431-2125
FT-GW431-4145	FT-GW431-5155	FT-GW431-6165
FT-GW431-7175	FT-GW432-4145	FT-GW432-5155
FT-GW432-6165	FT-GW432-7175	

EXECUTIVE SUMMARY

Laboratory Performance Issues: Sample VOC results were qualified for CCV %D quality control limit non-compliances. Fifteen (15) samples were qualified for low surrogate %Rs.

Other Factors Affecting Data Quality: Positive results below the Limit of Detection (LOD) and above the method detection limit were qualified as estimated, (J), due to uncertainty near the detection limit. The methylene chloride results for field duplicate samples FT-DUP04-20111021 and FT-GW432-5155 were qualified estimated for field duplicate imprecision. Chloroform was identified as present in the TIC report for some SDG samples.

The data for these analyses were reviewed with reference to the USEPA Region II Hazardous Waste Support Branch Validating Volatile Organic Compounds by Gas Chromatography/Mass Spectrometry SW-846 Method 8260B SOP #HW-24 Revision #2 August 2008 and the Department of Defense (DoD) document entitled "Quality Systems Manual (QSM) for Environmental Laboratories" (April 2009).

TetraTech NUS
Joseph Kalinyak
Chemist/Data Validator

TetraTech NUS
Joseph A. Samchuck
Data Validation Quality Assurance Officer

Attachments:
Appendix A - Qualified Analytical Results
Appendix B - Results as Reported by the Laboratory
Appendix C – Region II Data Validation Forms
Appendix D - Support Documentation

Appendix A

Qualified Analytical Results

Value Qualifier Key (Val Qual)

J – The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.

UJ – The result is an estimated non-detected quantity. The associated numerical value is the approximate concentration of the analyte in the sample.

U - Value is a non-detect as reported by the laboratory.

UR – Non-detected result is considered rejected, (UR), as a result of technical non-compliances.

DATA QUALIFICATION CODE (QUAL CODE)

Qualifier Codes:

A	=	Lab Blank Contamination
B	=	Field Blank Contamination
C	=	Calibration Noncompliance (i.e., % RSDs, %Ds, ICVs, CCVs, RRFs, etc.)
C01	=	GC/MS Tuning Noncompliance
D	=	MS/MSD Recovery Noncompliance
E	=	LCS/LCSD Recovery Noncompliance
F	=	Lab Duplicate Imprecision
G	=	Field Duplicate Imprecision
H	=	Holding Time Exceedance
I	=	ICP Serial Dilution Noncompliance
J	=	ICP PDS Recovery Noncompliance; MSA's $r < 0.995$
K	=	ICP Interference - includes ICS % R Noncompliance
L	=	Instrument Calibration Range Exceedance
M	=	Sample Preservation Noncompliance
N	=	Internal Standard Noncompliance
N01	=	Internal Standard Recovery Noncompliance Dioxins
N02	=	Recovery Standard Noncompliance Dioxins
N03	=	Clean-up Standard Noncompliance Dioxins
O	=	Poor Instrument Performance (i.e., base-time drifting)
P	=	Uncertainty near detection limit (< 2 x IDL for inorganics and <CRQL for organics)
Q	=	Other problems (can encompass a number of issues; i.e.chromatography,interferences, etc.)
R	=	Surrogates Recovery Noncompliance
S	=	Pesticide/PCB Resolution
T	=	% Breakdown Noncompliance for DDT and Endrin
U	=	RPD between columns/detectors >40% for positive results determined via GC/HPLC
V	=	Non-linear calibrations; correlation coefficient $r < 0.995$
W	=	EMPC result
X	=	Signal to noise response drop
Y	=	Percent solids <30%
Z	=	Uncertainty at 2 sigma deviation is less than sample activity
Z1	=	Tentatively Identified Compound considered presumptively present
Z2	=	Tentatively Identified Compound column bleed

PROJ_NO: 02750	NSAMPLE	FT-DUP03-20111020			FT-DUP04-20111021			FT-FB02-20111020			FT-GW431-2125		
SDG: C4303	LAB_ID	C4303-15			C4303-19			C4303-02			C4303-11		
FRACTION: OV	SAMP_DATE	10/20/2011			10/21/2011			10/20/2011			10/20/2011		
MEDIA: WATER	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF	FT-GW431-5155			FT-GW432-5155								
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,1,1-TRICHLOROETHANE		0.5	UJ	R	0.5	UJ	R	0.5	U		0.5	UJ	R
1,1,2,2-TETRACHLOROETHANE		0.5	UJ	R	0.5	UJ	R	0.5	U		0.5	UJ	R
1,1,2-TRICHLOROETHANE		0.5	UJ	R	0.5	UJ	R	0.5	U		0.5	UJ	R
1,1-DICHLOROETHANE		0.5	UJ	R	0.5	UJ	R	0.5	U		0.5	UJ	R
1,1-DICHLOROETHENE		0.5	UJ	R	0.5	UJ	R	0.5	U		0.5	UJ	R
1,2-DICHLOROETHANE		0.5	UJ	R	0.5	UJ	R	0.5	U		0.5	UJ	R
2-BUTANONE		2.5	UJ	CR	2.5	UJ	R	2.5	UJ	C	2.5	UJ	CR
ACETONE		2.5	UJ	CR	2.5	UJ	R	2.5	UJ	C	2.5	UJ	CR
BENZENE		0.5	UJ	CR	0.5	UJ	R	0.5	UJ	C	0.5	UJ	CR
CIS-1,2-DICHLOROETHENE		0.5	UJ	R	0.5	UJ	R	0.5	U		0.5	UJ	R
DICHLORODIFLUOROMETHANE		0.5	UJ	CR	0.95	J	CPR	0.5	UJ	C	0.5	UJ	CR
ETHYLBENZENE		0.5	UJ	R	0.5	UJ	R	0.5	U		0.5	UJ	R
M+P-XYLENES		1	UJ	R	1	UJ	R	1	U		1	UJ	R
METHYLENE CHLORIDE		0.5	UJ	CR	5.1	J	GR	0.5	UJ	C	0.5	UJ	CR
O-XYLENE		0.5	UJ	R	0.5	UJ	R	0.5	U		0.5	UJ	R
TETRACHLOROETHENE		0.5	UJ	CR	0.5	UJ	R	0.5	UJ	C	0.5	UJ	CR
TOLUENE		0.5	UJ	R	0.5	UJ	R	0.5	U		0.5	UJ	R
TRANS-1,2-DICHLOROETHENE		0.5	UJ	R	0.5	UJ	R	0.5	U		0.5	UJ	R
TRICHLOROETHENE		0.5	UJ	R	0.5	UJ	R	0.5	U		0.5	UJ	R
TRICHLOROFLUOROMETHANE		0.5	UJ	R	0.5	UJ	R	0.5	U		0.5	UJ	R
VINYL CHLORIDE		0.5	UJ	R	0.5	UJ	R	0.5	U		0.5	UJ	R

PROJ_NO: 02750	NSAMPLE	FT-GW431-3135RE			FT-GW431-4145			FT-GW431-5155			FT-GW431-6165		
SDG: C4303	LAB_ID	C4303-05RE			C4303-10			C4303-09			C4303-04		
FRACTION: OV	SAMP_DATE	10/20/2011			10/20/2011			10/20/2011			10/20/2011		
MEDIA: WATER	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,1,1-TRICHLOROETHANE		0.5	UJ	R	0.5	UJ	R	0.5	UJ	R	0.5	UJ	R
1,1,2,2-TETRACHLOROETHANE		0.5	UJ	R	0.5	UJ	R	0.5	UJ	R	0.5	UJ	R
1,1,2-TRICHLOROETHANE		0.5	UJ	R	0.5	UJ	R	0.5	UJ	R	0.5	UJ	R
1,1-DICHLOROETHANE		0.5	UJ	R	0.5	UJ	R	0.5	UJ	R	0.5	UJ	R
1,1-DICHLOROETHENE		0.5	UJ	R	0.5	UJ	R	0.5	UJ	R	0.5	UJ	R
1,2-DICHLOROETHANE		0.5	UJ	R	0.5	UJ	R	0.5	UJ	R	0.5	UJ	R
2-BUTANONE		2.5	UJ	R	2.5	UJ	CR	2.5	UJ	CR	2.5	UJ	CR
ACETONE		2.5	UJ	R	2.5	UJ	CR	2.5	UJ	CR	2.5	UJ	CR
BENZENE		0.5	UJ	R	0.5	UJ	CR	0.5	UJ	CR	0.5	UJ	CR
CIS-1,2-DICHLOROETHENE		0.5	UJ	R	0.5	UJ	R	0.5	UJ	R	0.5	UJ	R
DICHLORODIFLUOROMETHANE		0.5	UJ	CR	0.5	UJ	CR	0.5	UJ	CR	0.5	UJ	CR
ETHYLBENZENE		0.5	UJ	R	0.5	UJ	R	0.5	UJ	R	0.5	UJ	R
M+P-XYLENES		1	UJ	R	1	UJ	R	1	UJ	R	1	UJ	R
METHYLENE CHLORIDE		0.5	UJ	R	0.5	UJ	CR	0.5	UJ	CR	0.5	UJ	CR
O-XYLENE		0.5	UJ	R	0.5	UJ	R	0.5	UJ	R	0.5	UJ	R
TETRACHLOROETHENE		0.5	UJ	R	0.5	UJ	CR	0.5	UJ	CR	0.5	UJ	CR
TOLUENE		0.5	UJ	R	0.5	UJ	R	0.5	UJ	R	0.5	UJ	R
TRANS-1,2-DICHLOROETHENE		0.5	UJ	R	0.5	UJ	R	0.5	UJ	R	0.5	UJ	R
TRICHLOROETHENE		0.5	UJ	R	0.5	UJ	R	0.5	UJ	R	0.5	UJ	R
TRICHLOROFLUOROMETHANE		0.5	UJ	R	0.5	UJ	R	0.5	UJ	R	0.5	UJ	R
VINYL CHLORIDE		0.5	UJ	R	0.5	UJ	R	0.5	UJ	R	0.5	UJ	R

PROJ_NO: 02750	NSAMPLE	FT-GW431-7175			FT-GW432-2630			FT-GW432-3135			FT-GW432-4145		
SDG: C4303	LAB_ID	C4303-03			C4303-18			C4303-14			C4303-17		
FRACTION: OV	SAMP_DATE	10/20/2011			10/21/2011			10/20/2011			10/21/2011		
MEDIA: WATER	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,1,1-TRICHLOROETHANE		0.5	UJ	R	0.5	UJ	R	0.5	UJ	R	0.5	UJ	R
1,1,2,2-TETRACHLOROETHANE		0.5	UJ	R	0.5	UJ	R	0.5	UJ	R	0.5	UJ	R
1,1,2-TRICHLOROETHANE		0.5	UJ	R	0.5	UJ	R	0.5	UJ	R	0.5	UJ	R
1,1-DICHLOROETHANE		0.5	UJ	R	0.5	UJ	R	0.5	UJ	R	0.5	UJ	R
1,1-DICHLOROETHENE		0.5	UJ	R	0.5	UJ	R	0.5	UJ	R	0.5	UJ	R
1,2-DICHLOROETHANE		0.5	UJ	R	0.5	UJ	R	0.5	UJ	R	0.5	UJ	R
2-BUTANONE		2.5	UJ	CR	2.5	UJ	CR	2.5	UJ	CR	2.5	UJ	CR
ACETONE		2.5	UJ	CR	2.5	UJ	CR	2.5	UJ	CR	2.5	UJ	CR
BENZENE		0.5	UJ	CR	0.5	UJ	CR	0.5	UJ	CR	0.5	UJ	CR
CIS-1,2-DICHLOROETHENE		0.5	UJ	R	0.5	UJ	R	0.5	UJ	R	0.5	UJ	R
DICHLORODIFLUOROMETHANE		0.5	UJ	CR	0.5	UJ	CR	0.5	UJ	CR	0.5	UJ	CR
ETHYLBENZENE		0.5	UJ	R	0.5	UJ	R	0.5	UJ	R	0.5	UJ	R
M+P-XYLENES		1	UJ	R	1	UJ	R	1	UJ	R	1	UJ	R
METHYLENE CHLORIDE		0.5	UJ	CR	0.5	UJ	CR	0.5	UJ	CR	0.5	UJ	CR
O-XYLENE		0.5	UJ	R	0.5	UJ	R	0.5	UJ	R	0.5	UJ	R
TETRACHLOROETHENE		0.5	UJ	CR	0.5	UJ	CR	0.5	UJ	CR	0.5	UJ	CR
TOLUENE		0.5	UJ	R	0.5	UJ	R	0.5	UJ	R	0.5	UJ	R
TRANS-1,2-DICHLOROETHENE		0.5	UJ	R	0.5	UJ	R	0.5	UJ	R	0.5	UJ	R
TRICHLOROETHENE		0.5	UJ	R	0.5	UJ	R	0.5	UJ	R	0.5	UJ	R
TRICHLOROFLUOROMETHANE		0.5	UJ	R	0.5	UJ	R	0.5	UJ	R	0.5	UJ	R
VINYL CHLORIDE		0.5	UJ	R	0.5	UJ	R	0.5	UJ	R	0.5	UJ	R

PROJ_NO: 02750	NSAMPLE	FT-GW432-5155			FT-GW432-6165			FT-GW432-7175			FT-GW433-2630		
SDG: C4303	LAB_ID	C4303-16			C4303-13			C4303-12			C4303-20		
FRACTION: OV	SAMP_DATE	10/21/2011			10/20/2011			10/20/2011			10/21/2011		
MEDIA: WATER	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,1,1-TRICHLOROETHANE		0.5	UJ	R	0.5	UJ	R	0.5	UJ	R	0.5	UJ	R
1,1,2,2-TETRACHLOROETHANE		0.5	UJ	R	0.5	UJ	R	0.5	UJ	R	0.5	UJ	R
1,1,2-TRICHLOROETHANE		0.5	UJ	R	0.5	UJ	R	0.5	UJ	R	0.5	UJ	R
1,1-DICHLOROETHANE		0.5	UJ	R	0.5	UJ	R	0.5	UJ	R	0.5	UJ	R
1,1-DICHLOROETHENE		0.5	UJ	R	0.5	UJ	R	0.5	UJ	R	0.5	UJ	R
1,2-DICHLOROETHANE		0.5	UJ	R	0.5	UJ	R	0.5	UJ	R	0.5	UJ	R
2-BUTANONE		2.5	UJ	CR	2.5	UJ	CR	2.5	UJ	CR	2.5	UJ	R
ACETONE		2.5	UJ	CR	2.5	UJ	CR	2.5	UJ	CR	2.5	UJ	R
BENZENE		0.5	UJ	CR	0.5	UJ	R	0.5	UJ	CR	0.5	UJ	R
CIS-1,2-DICHLOROETHENE		0.5	UJ	R	0.5	UJ	R	0.5	UJ	R	0.5	UJ	R
DICHLORODIFLUOROMETHANE		0.5	UJ	CR	1.4	J	R	0.5	UJ	CR	1	J	CPR
ETHYLBENZENE		0.5	UJ	R	0.5	UJ	R	0.5	UJ	R	0.5	UJ	R
M+P-XYLENES		1	UJ	R	1	UJ	R	1	UJ	R	1	UJ	R
METHYLENE CHLORIDE		0.5	UJ	CGR	6.7	J	CR	0.5	UJ	CR	6.4	J	R
O-XYLENE		0.5	UJ	R	0.5	UJ	R	0.5	UJ	R	0.5	UJ	R
TETRACHLOROETHENE		0.5	UJ	CR	0.5	UJ	R	0.5	UJ	CR	0.5	UJ	R
TOLUENE		0.5	UJ	R	0.5	UJ	R	0.5	UJ	R	0.5	UJ	R
TRANS-1,2-DICHLOROETHENE		0.5	UJ	R	0.5	UJ	R	0.5	UJ	R	0.5	UJ	R
TRICHLOROETHENE		0.5	UJ	R	0.5	UJ	R	0.5	UJ	R	0.5	UJ	R
TRICHLOROFLUOROMETHANE		0.5	UJ	R	0.5	UJ	R	0.5	UJ	R	0.5	UJ	R
VINYL CHLORIDE		0.5	UJ	R	0.5	UJ	R	0.5	UJ	R	0.5	UJ	R

PROJ_NO: 02750	NSAMPLE	FT-GW433-3135RE			FT-RB02-20111020			FT-TB03-20111011		
SDG: C4303	LAB_ID	C4303-21RE			C4303-08			C4303-01		
FRACTION: OV	SAMP_DATE	10/21/2011			10/20/2011			10/20/2011		
MEDIA: WATER	QC_TYPE	NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0			0.0		
	DUP_OF									
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,1,1-TRICHLOROETHANE		0.5	U		0.5	U		0.5	U	
1,1,2,2-TETRACHLOROETHANE		0.5	U		0.5	U		0.5	U	
1,1,2-TRICHLOROETHANE		0.5	U		0.5	U		0.5	U	
1,1-DICHLOROETHANE		0.5	U		0.5	U		0.5	U	
1,1-DICHLOROETHENE		0.5	U		0.5	U		0.5	U	
1,2-DICHLOROETHANE		0.5	U		0.5	U		0.5	U	
2-BUTANONE		2.5	U		2.5	UJ	C	2.5	U	
ACETONE		2.5	U		2.5	UJ	C	2.5	U	
BENZENE		0.5	U		0.5	UJ	C	0.5	U	
CIS-1,2-DICHLOROETHENE		0.5	U		0.5	U		0.5	U	
DICHLORODIFLUOROMETHANE		0.5	U		0.5	UJ	C	0.5	U	
ETHYLBENZENE		0.5	U		0.5	U		0.5	U	
M+P-XYLENES		1	U		1	U		1	U	
METHYLENE CHLORIDE		1.7			0.5	UJ	C	0.5	U	
O-XYLENE		0.5	U		0.5	U		0.5	U	
TETRACHLOROETHENE		0.5	U		0.5	UJ	C	0.5	U	
TOLUENE		0.5	U		0.5	U		0.5	U	
TRANS-1,2-DICHLOROETHENE		0.5	U		0.5	U		0.5	U	
TRICHLOROETHENE		0.5	U		0.5	U		0.5	U	
TRICHLOROFLUOROMETHANE		0.5	U		0.5	U		0.5	U	
VINYL CHLORIDE		0.5	U		0.5	U		0.5	U	

Tetra Tech NUS **INTERNAL CORRESPONDENCE**

TO:	**D. BRAYACK**	**DATE:**	**JANUARY 5, 2012**
FROM:	**JOSEPH KALINYAK**	**COPIES:**	**DV FILE**
SUBJECT:	**ORGANIC DATA VALIDATION – VOC NWIRP CALVERTON CTO WE63 SDG C4355**		
SAMPLES:	14 / Aqueous / VOC		

FT-DUP05-20111025	FT-DUP06-20111025	FT-GW434-2630
FT-GW434-3135	FT-GW434-4145	FT-GW434-5155
FT-GW434-6165	FT-GW434-7175	FT-GW436-2630
FT-GW436-3135	FT-GW436-4145	FT-GW436-5155
FT-GW436-6165	FT-GW436-7175	

Overview

The sample set for NWIRP Calverton, CTO WE63, SDG C4355 consisted of fourteen (14) aqueous samples. All aqueous samples were analyzed for a select list of volatile organic compounds (VOC). One (1) field duplicate sample pair was included from this Sample Delivery Group (SDG) and one (1) field duplicate sample pair was included from this SDG and SDG C4354: FT-DUP05-20111025 / FT-GW435-6165 (SDG C4354) and FT-DUP06-20111025 / FT-GW434-2630.

The samples were collected by Tetra Tech on October 25 and 26, 2011 and analyzed by ChemTech laboratory. All analyses were conducted in accordance with EPA Method SW-846 8260B analytical and reporting protocols. The data contained in this SDG were validated with regard to the following parameters:

*	Data completeness
*	Hold times
*	GC/MS System Tuning and Performance
*	Initial/continuing calibrations
*	Laboratory Blank Results
	Laboratory Control Sample/Laboratory Control Sample Duplicate Recoveries
	Surrogate Spike Recoveries
*	Internal Standard Recoveries
*	Field Duplicate Precision
*	Compound Identification
*	Compound Quantitation
*	Detection Limits

The symbol (*) indicates that all quality control criteria were met for this parameter. Qualified analytical results are presented in Appendix A, results as reported by the laboratory are presented in Appendix B, Region II data validation forms are presented in Appendix C, and documentation supporting these findings is presented in Appendix D.

VOC

The continuing calibration verification (CCV) percent difference (%D) was greater than the 20% quality control limit for dichlorodifluoromethane, vinyl chloride, acetone, and 1,1,2,2-tetrachloroethane for instrument MSVOAH on 11/08/11 @ 00:51.

Affected samples:

FT-DUP05-20111025	FT-DUP06-20111025	FT-GW434-4145
FT-GW434-5155	FT-GW434-6165	FT-GW436-2630
FT-GW436-3135	FT-GW436-4145	FT-GW436-5155
FT-GW436-6165	FT-GW436-7175	

Action: All aforementioned sample positive and non-detected results for acetone, dichlorodifluoromethane, vinyl chloride, and 1,1,2,2-tetrachloroethane were qualified estimated, (J) and (UJ), respectively.

The surrogate (system monitoring compound) percent recoveries (%R) for 4-bromofluorobenzene (BFB) were greater than the quality control limit for samples listed below.

Affected samples:

FT-GW434-7175	FT-GW434-3135	FT-GW434-5155
FT-GW434-4145	FT-DUP05-20111025	FT-GW436-3135
FT-GW436-6165	FT-GW436-4145	

Actions: All samples in the SDG were re-analyzed. The re-analysis samples had surrogate %Rs less than the quality control limit for one or more surrogates and therefore the original samples analyses were validated. The positive VOC analyte results for the aforementioned samples were qualified estimated, (J), and the non-detected VOC analyte results were not qualified.

Positive results below the limit of quantitation (LOQ) and above the method detection limit were qualified as estimated, (J), due to uncertainty near the detection limit.

Additional Comments

The laboratory control sample (LCS) %R was greater than the quality control limit for dichlorodifluoromethane for LCS BSH1107W1. No validation action was necessary as all affected samples had non-detected results for dichlorodifluoromethane.

The LCS duplicate (LSCD) %R was greater than the quality control limit for dichlorodifluoromethane for LCS BSH1107W4. No validation action was necessary as all affected samples had non-detected results for dichlorodifluoromethane.

All samples were analyzed on two instruments, MSVOAH and MSVOAG. The initial analysis was performed on instrument MSVOAH which was calibrated with the lowest standard at 5 µg/l. The samples were re-analyzed on instrument MSVOAG which was calibrated with a lower standard at 1 µg/l. Due to the fewer surrogate %R quality control limit non-compliances, the results were reported from instrument MSVOAH which resulted in higher limit of detection (LOD) results for non-detected analytes.

Twenty-one (21) analytes were reported for VOCs.

Non-detected sample results were reported to the LOD.

EXECUTIVE SUMMARY

Laboratory Performance Issues: Sample VOC results were qualified for CCV %D and surrogate %R quality control limit non-compliances.

Other Factors Affecting Data Quality: Positive results below the Limit of Detection (LOD) and above the method detection limit were qualified as estimated, (J), due to uncertainty near the detection limit.

The data for these analyses were reviewed with reference to the USEPA Region II Hazardous Waste Support Branch Validating Volatile Organic Compounds by Gas Chromatography/Mass Spectrometry SW-846 Method 8260B SOP #HW-24 Revision #2 August 2008 and the Department of Defense (DoD) document entitled "Quality Systems Manual (QSM) for Environmental Laboratories" (April 2009).

TetraTech NUS
Joseph Kalinyak
Chemist/Data Validator

TetraTech NUS
Joseph A. Samchuck
Data Validation Quality Assurance Officer

Attachments:
Appendix A - Qualified Analytical Results
Appendix B - Results as Reported by the Laboratory
Appendix C – Region II Data Validation Forms
Appendix D - Support Documentation

Appendix A

Qualified Analytical Results

Value Qualifier Key (Val Qual)

J – The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.

UJ – The result is an estimated non-detected quantity. The associated numerical value is the approximate concentration of the analyte in the sample.

U - Value is a non-detect as reported by the laboratory.

UR – Non-detected result is considered rejected, (UR), as a result of technical non-compliances.

DATA QUALIFICATION CODE (QUAL CODE)

Qualifier Codes:

A	=	Lab Blank Contamination
B	=	Field Blank Contamination
C	=	Calibration Noncompliance (i.e., % RSDs, %Ds, ICVs, CCVs, RRFs, etc.)
C01	=	GC/MS Tuning Noncompliance
D	=	MS/MSD Recovery Noncompliance
E	=	LCS/LCSD Recovery Noncompliance
F	=	Lab Duplicate Imprecision
G	=	Field Duplicate Imprecision
H	=	Holding Time Exceedance
I	=	ICP Serial Dilution Noncompliance
J	=	ICP PDS Recovery Noncompliance; MSA's $r < 0.995$
K	=	ICP Interference - includes ICS % R Noncompliance
L	=	Instrument Calibration Range Exceedance
M	=	Sample Preservation Noncompliance
N	=	Internal Standard Noncompliance
N01	=	Internal Standard Recovery Noncompliance Dioxins
N02	=	Recovery Standard Noncompliance Dioxins
N03	=	Clean-up Standard Noncompliance Dioxins
O	=	Poor Instrument Performance (i.e., base-time drifting)
P	=	Uncertainty near detection limit (< 2 x IDL for inorganics and <CRQL for organics)
Q	=	Other problems (can encompass a number of issues; i.e.chromatography,interferences, etc.)
R	=	Surrogates Recovery Noncompliance
S	=	Pesticide/PCB Resolution
T	=	% Breakdown Noncompliance for DDT and Endrin
U	=	RPD between columns/detectors >40% for positive results determined via GC/HPLC
V	=	Non-linear calibrations; correlation coefficient $r < 0.995$
W	=	EMPC result
X	=	Signal to noise response drop
Y	=	Percent solids <30%
Z	=	Uncertainty at 2 sigma deviation is less than sample activity
Z1	=	Tentatively Identified Compound considered presumptively present
Z2	=	Tentatively Identified Compound column bleed

PROJ_NO: 02750	NSAMPLE	FT-DUP05-20111025			FT-DUP06-20111025			FT-GW434-2630			FT-GW434-3135		
SDG: C4355	LAB_ID	C4355-07			C4355-08			C4355-02			C4355-03		
FRACTION: OV	SAMP_DATE	10/25/2011			10/25/2011			10/25/2011			10/25/2011		
MEDIA: WATER	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF	FT-GW435-6165			FT-GW434-2630								
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,1,1-TRICHLOROETHANE		2.5	U		2.5	U		2.5	U		2.5	U	
1,1,2,2-TETRACHLOROETHANE		2.5	UJ	C	2.5	UJ	C	2.5	U		2.5	U	
1,1,2-TRICHLOROETHANE		2.5	U		2.5	U		2.5	U		2.5	U	
1,1-DICHLOROETHANE		2.5	U		2.5	U		2.5	U		4.5	J	P
1,1-DICHLOROETHENE		2.5	U		2.5	U		2.5	U		2.5	U	
1,2-DICHLOROETHANE		2.5	U		2.5	U		2.5	U		2.5	U	
2-BUTANONE		12.5	U		12.5	U		12.5	U		12.5	U	
ACETONE		12.5	UJ	C	14	J	CPR	12.5	U		13	J	P
BENZENE		2.5	U		2.5	U		2.5	U		2.5	U	
CIS-1,2-DICHLOROETHENE		2.5	U		2.5	U		2.5	U		2.5	U	
DICHLORODIFLUOROMETHANE		2.5	UJ	C	2.5	UJ	C	2.5	U		2.5	U	
ETHYLBENZENE		2.5	U		2.5	U		2.5	U		2.5	U	
M+P-XYLENES		5	U		5	U		5	U		5	U	
METHYLENE CHLORIDE		2.5	U		2.5	U		2.5	U		2.5	U	
O-XYLENE		2.5	U		2.5	U		2.5	U		2.5	U	
TETRACHLOROETHENE		2.5	U		2.5	U		2.5	U		2.5	U	
TOLUENE		2.5	U		2.5	U		2.5	U		2.5	U	
TRANS-1,2-DICHLOROETHENE		2.5	U		2.5	U		2.5	U		2.5	U	
TRICHLOROETHENE		2.5	U		2.5	U		2.5	U		49		
TRICHLOROFLUOROMETHANE		2.5	U		2.5	U		2.5	U		2.5	U	
VINYL CHLORIDE		2.5	UJ	C	2.5	UJ	C	2.5	U		2.5	U	

PROJ_NO: 02750	NSAMPLE	FT-DUP05-20111025			FT-DUP06-20111025			FT-GW434-2630			FT-GW434-3135		
SDG: C4355	LAB_ID	C4355-07			C4355-08			C4355-02			C4355-03		
FRACTION: OV	SAMP_DATE	10/25/2011			10/25/2011			10/25/2011			10/25/2011		
MEDIA: WATER	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF	FT-GW435-6165			FT-GW434-2630								
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,1,1-TRICHLOROETHANE		2.5	U		2.5	U		2.5	U		2.5	U	
1,1,2,2-TETRACHLOROETHANE		2.5	UJ	C	2.5	UJ	C	2.5	U		2.5	U	
1,1,2-TRICHLOROETHANE		2.5	U		2.5	U		2.5	U		2.5	U	
1,1-DICHLOROETHANE		2.5	U		2.5	U		2.5	U		4.5	J	PR
1,1-DICHLOROETHENE		2.5	U		2.5	U		2.5	U		2.5	U	
1,2-DICHLOROETHANE		2.5	U		2.5	U		2.5	U		2.5	U	
2-BUTANONE		12.5	U		12.5	U		12.5	U		12.5	U	
ACETONE		12.5	UJ	C	14	J	CP	12.5	U		13	J	PR
BENZENE		2.5	U		2.5	U		2.5	U		2.5	U	
CIS-1,2-DICHLOROETHENE		2.5	U		2.5	U		2.5	U		2.5	U	
DICHLORODIFLUOROMETHANE		2.5	UJ	C	2.5	UJ	C	2.5	U		2.5	U	
ETHYLBENZENE		2.5	U		2.5	U		2.5	U		2.5	U	
M+P-XYLENES		5	U		5	U		5	U		5	U	
METHYLENE CHLORIDE		2.5	U		2.5	U		2.5	U		2.5	U	
O-XYLENE		2.5	U		2.5	U		2.5	U		2.5	U	
TETRACHLOROETHENE		2.5	U		2.5	U		2.5	U		2.5	U	
TOLUENE		2.5	U		2.5	U		2.5	U		2.5	U	
TRANS-1,2-DICHLOROETHENE		2.5	U		2.5	U		2.5	U		2.5	U	
TRICHLOROETHENE		2.5	U		2.5	U		2.5	U		49	J	R
TRICHLOROFLUOROMETHANE		2.5	U		2.5	U		2.5	U		2.5	U	
VINYL CHLORIDE		2.5	UJ	C	2.5	UJ	C	2.5	U		2.5	U	

PROJ_NO: 02750	NSAMPLE	FT-GW434-4145			FT-GW434-5155			FT-GW434-6165			FT-GW434-7175		
SDG: C4355	LAB_ID	C4355-05			C4355-04			C4355-06			C4355-01		
FRACTION: OV	SAMP_DATE	10/25/2011			10/25/2011			10/25/2011			10/25/2011		
MEDIA: WATER	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,1,1-TRICHLOROETHANE		2.5	U		2.5	U		2.5	U		2.5	U	
1,1,2,2-TETRACHLOROETHANE		2.5	UJ	C	2.5	UJ	C	2.5	UJ	C	2.5	U	
1,1,2-TRICHLOROETHANE		2.5	U		2.5	U		2.5	U		2.5	U	
1,1-DICHLOROETHANE		2.5	U		2.5	U		2.5	U		2.5	U	
1,1-DICHLOROETHENE		2.5	U		2.5	U		2.5	U		2.5	U	
1,2-DICHLOROETHANE		2.5	U		2.5	U		2.5	U		2.5	U	
2-BUTANONE		12.5	U		12.5	U		12.5	U		12.5	U	
ACETONE		14	J	CPR	16	J	CPR	12	J	CP	12.5	U	
BENZENE		2.5	U		2.5	U		2.5	U		2.5	U	
CIS-1,2-DICHLOROETHENE		2.5	U		2.5	U		2.5	U		2.5	U	
DICHLORODIFLUOROMETHANE		2.5	UJ	C	2.5	UJ	C	2.5	UJ	C	2.5	U	
ETHYLBENZENE		2.5	U		2.5	U		2.5	U		2.5	U	
M+P-XYLENES		5	U		5	U		5	U		5	U	
METHYLENE CHLORIDE		2.5	U		2.5	U		2.5	U		2.5	U	
O-XYLENE		2.5	U		2.5	U		2.5	U		2.5	U	
TETRACHLOROETHENE		2.5	U		2.5	U		2.5	U		2.5	U	
TOLUENE		2.5	U		2.5	U		2.5	U		2.5	U	
TRANS-1,2-DICHLOROETHENE		2.5	U		2.5	U		2.5	U		2.5	U	
TRICHLOROETHENE		2.5	U		2.5	U		2.5	U		2.5	U	
TRICHLOROFLUOROMETHANE		2.5	U		2.5	U		2.5	U		2.5	U	
VINYL CHLORIDE		2.5	UJ	C	2.5	UJ	C	2.5	UJ	C	2.5	U	

PROJ_NO: 02750	NSAMPLE	FT-GW436-2630			FT-GW436-3135			FT-GW436-4145			FT-GW436-5155		
SDG: C4355	LAB_ID	C4355-14			C4355-11			C4355-13			C4355-10		
FRACTION: OV	SAMP_DATE	10/26/2011			10/26/2011			10/26/2011			10/26/2011		
MEDIA: WATER	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,1,1-TRICHLOROETHANE		2.5	U		2.5	U		2.5	U		2.5	U	
1,1,2,2-TETRACHLOROETHANE		2.5	UJ	C	2.5	UJ	C	2.5	UJ	C	2.5	UJ	C
1,1,2-TRICHLOROETHANE		2.5	U		2.5	U		2.5	U		2.5	U	
1,1-DICHLOROETHANE		2.5	U		2.5	U		2.5	U		2.5	U	
1,1-DICHLOROETHENE		2.5	U		2.5	U		2.5	U		2.5	U	
1,2-DICHLOROETHANE		2.5	U		2.5	U		2.5	U		2.5	U	
2-BUTANONE		12.5	U		12.5	U		12.5	U		12.5	U	
ACETONE		15	J	CP	12.5	UJ	C	12.5	UJ	C	12.5	UJ	C
BENZENE		2.5	U		2.5	U		2.5	U		2.5	U	
CIS-1,2-DICHLOROETHENE		2.5	U		2.5	U		2.5	U		2.5	U	
DICHLORODIFLUOROMETHANE		2.5	UJ	C	2.5	UJ	C	2.5	UJ	C	2.5	UJ	C
ETHYLBENZENE		2.5	U		2.5	U		2.5	U		2.5	U	
M+P-XYLENES		5	U		5	U		5	U		5	U	
METHYLENE CHLORIDE		2.5	U		2.5	U		2.5	U		2.5	U	
O-XYLENE		2.5	U		2.5	U		2.5	U		2.5	U	
TETRACHLOROETHENE		2.5	U		2.5	U		2.5	U		2.5	U	
TOLUENE		2.5	U		2.5	U		2.5	U		2.5	U	
TRANS-1,2-DICHLOROETHENE		2.5	U		2.5	U		2.5	U		2.5	U	
TRICHLOROETHENE		2.5	U		2.5	U		2.5	U		2.5	U	
TRICHLOROFLUOROMETHANE		2.5	U		2.5	U		2.5	U		2.5	U	
VINYL CHLORIDE		2.5	UJ	C	2.5	UJ	C	2.5	UJ	C	2.5	UJ	C

PROJ_NO: 02750	NSAMPLE	FT-GW436-6165			FT-GW436-7175		
SDG: C4355	LAB_ID	C4355-12			C4355-09		
FRACTION: OV	SAMP_DATE	10/26/2011			10/25/2011		
MEDIA: WATER	QC_TYPE	NM			NM		
	UNITS	UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0		
	DUP_OF						
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,1,1-TRICHLOROETHANE		2.5	U		2.5	U	
1,1,2,2-TETRACHLOROETHANE		2.5	UJ	C	2.5	UJ	C
1,1,2-TRICHLOROETHANE		2.5	U		2.5	U	
1,1-DICHLOROETHANE		2.5	U		2.5	U	
1,1-DICHLOROETHENE		2.5	U		2.5	U	
1,2-DICHLOROETHANE		2.5	U		2.5	U	
2-BUTANONE		12.5	U		12.5	U	
ACETONE		12.5	UJ	C	12	J	CP
BENZENE		2.5	U		2.5	U	
CIS-1,2-DICHLOROETHENE		2.5	U		2.5	U	
DICHLORODIFLUOROMETHANE		2.5	UJ	C	2.5	UJ	C
ETHYLBENZENE		2.5	U		2.5	U	
M+P-XYLENES		5	U		5	U	
METHYLENE CHLORIDE		2.5	U		2.5	U	
O-XYLENE		2.5	U		2.5	U	
TETRACHLOROETHENE		2.5	U		2.5	U	
TOLUENE		2.5	U		2.5	U	
TRANS-1,2-DICHLOROETHENE		2.5	U		2.5	U	
TRICHLOROETHENE		2.5	U		2.5	U	
TRICHLOROFLUOROMETHANE		2.5	U		2.5	U	
VINYL CHLORIDE		2.5	UJ	C	2.5	UJ	C

Tetra Tech, Inc. **INTERNAL CORRESPONDENCE**

TO:	**D. BRAYACK**	**DATE:**	**FEBRUARY 2, 2011**
FROM:	**MICHELLE L. ALLEN**	**COPIES:**	**DV FILE**

SUBJECT: **ORGANIC DATA VALIDATION – VOC**
NAVAL WEAPONS INDUSTRIAL RESERVE PLANT (NWIRP), CALVERTON
CTO WE08
SAMPLE DELIVERY GROUP (SDG) C4998

SAMPLES: 21/Aqueous/VOC

FT-DUP01-20111213	FT-DUP02-20111214	FT-FB01-20111213
FT-GW437-2125	FT-GW437-3135	FT-GW437-4145
FT-GW437-5155	FT-GW438-2125	FT-GW438-3135
FT-GW438-4145	FT-GW438-5155	FT-GW439-2125
FT-GW439-3135	FT-GW439-4145	FT-GW439-5155
FT-GW440-2125	FT-GW440-3135	FT-GW440-4145
FT-GW440-5155	FT-RB01-20111213	FT-TB01-20111213

Overview

The sample set for NWIRP Calverton SDG C4998 consisted of eighteen (18) aqueous environmental samples, one (1) field blank, one (1) rinsate blank, and one (1) trip blank. All twenty-one (21) aqueous samples were analyzed for Target Compound List (TCL) volatile organic compounds (VOC). Two field duplicate sample pairs were associated with this Sample Delivery Group (SDG): FT-DUP01-20111213/FT-GW439-3135 and FT-DUP02-20111214/FT-GW437-4145.

The samples were collected by Tetra Tech, Inc. on December 13 and 14, 2011 and analyzed by Chemtech. All analyses were conducted in accordance with EPA Method SW-846 8260B analytical and reporting protocols. The data contained in this SDG was validated with regard to the following parameters:

- * Data completeness
- * Hold times
- * GC/MS System Tuning and Performance
- Initial/continuing calibrations
- * Laboratory Method and Field Blank Results
- Surrogate Spike Recoveries
- * Internal Standard Results
- Laboratory Control Sample Results
- Matrix Spike/Matrix Spike Duplicate Sample Results
- * Field Duplicate Precision
- * Compound Identification
- * Compound Quantitation
- * Detection Limits

The symbol (*) indicates that all quality control criteria were met for this parameter. Qualified analytical results are presented in Appendix A, results as reported by the laboratory are presented in Appendix B, Region II data validation forms are presented in Appendix C, and documentation supporting these findings is presented in Appendix D.

Volatiles (VOC)

The initial and continuing calibrations performed on instruments MSVOAG had Relative Response Factors (RRFs) less than the 0.05 minimum response criterion for 1,4-dioxane. All samples were affected. Only non-detected results were reported for 1,4-dioxane in the affected samples and these non-detects were qualified as rejected, (UR).

The continuing calibration performed on 12/16/11 @ 00:08 had Percent Drifts (%Drifts) for acetone and 1,4-dioxane and Percent Differences (%Ds) for bromomethane, chloroethane, methyl acetate, 2-butanone, and styrene above the 20% quality control limits. Samples FT-FB01-20111213, FT-GW437-2125, FT-GW437-4145, FT-GW438-2125, FT-GW438-3135, FT-GW438-4145, FT-GW438-5155, FT-GW439-2125, FT-GW439-3135, FT-GW439-4145, FT-GW439-5155, FT-RB01-20111213, and FT-TB01-20111213 were affected. No action was taken for 1,4-dioxane because the affected results were qualified for a more severe calibration noncompliance. The positive and non-detected results reported for the remaining compounds in the affected samples were qualified as estimated, (J) and (UJ), respectively.

%Drifts for acetone and 1,4-dioxane were above the 20% quality control limit for the continuing calibration performed on 12/16/11 @ 16:15. In addition, the continuing calibration had %Ds for bromomethane, chloroethane, carbon disulfide, methyl acetate, and bromoform. No action was taken for 1,4-dioxane because the affected results were qualified for a more severe calibration noncompliance. The positive and non-detected results were reported for these compounds in the affected samples, FT-DUP01-20111213, FT-DUP02-20111214, FT-GW437-3135, FT-GW437-5155, FT-GW440-2125, FT-GW440-3135, FT-GW440-4145, and FT-GW440-5155 were qualified as estimated, (J) and (UJ), respectively.

The Percent Recoveries (%Rs) for the surrogate spike compound, toluene-d8, were below the lower quality control limit in samples, FT-GW438-5155, FT-GW439-5155, FT-GW440-2125, FT-GW440-4145, and FT-RB01-20111213. These samples were reanalyzed and yielded similar results. The results from the original analyses were used in the data validation. The positive and non-detected results reported for the target compounds in the affected samples were qualified as estimated, (J) and (UJ), respectively.

The %Rs for 2-chloroethyl vinyl ether in the Matrix Spike (MS) and the Matrix Spike Duplicate (MSD) samples were zero. The non-detected result reported for this compound in the parent sample, FT-GW438-3135, was qualified as rejected, (UR).

Positive results reported below the Limit of Quantitation (LOQ) and above the Method Detection Level (MDL) were qualified as estimated, (J).

Additional Comments

The Laboratory Control Samples (LCSs), BSG1215W3 and BSG1216W1, had a %Rs for 1,4-dioxane and bromochloromethane above the upper quality control limits, respectively. No action was necessary in the affected samples because no positive results were reported for these compounds.

The MS/MSD %Rs for acetone and 1,4-dioxane were above the upper quality control limits. In addition, the Relative Percent Difference (RPD) for carbon disulfide was above the 20% quality control limit. No action was taken because no positive results were reported for these compounds in the parent sample.

The field blank, FT-FB01-20111213, was reanalyzed by the laboratory, however, the reason was not addressed in the case narrative. The reanalyzed results were not used in the data validation.

1,1-Dichloroethane and acetone were detected below the LOQ in the environmental sample, FT-GW439-

3135, but not in the associated field duplicate sample, FT-DUP01-20111213. No action was necessary for field duplicate imprecision because the differences between the positive and non-detected results were less than 2X the LOQs.

Chloroform was detected below the LOQ in the field duplicate sample, FT-DUP02-20111214, but not in the associated environmental sample, FT-GW437-4145. Furthermore, chloromethane was detected below the LOQ in both samples. No action was taken for field duplicate imprecision because the differences between the results were less than 2X the LOQs.

Non-detected results are reported to the Limit of Detection (LOD).

EXECUTIVE SUMMARY

Laboratory Performance Issues: The 1,4-dioxane results were rejected due to initial and continuing calibration RRFs below 0.05. Several continuing calibration %Ds and %Drifts exceeded the 20% quality control limit. LCS %Rs for 1,4-dioxane and bromochloromethane were above the upper quality control limit.

Other Factors Affecting Data Quality: The MS/MSD %Rs for 2-chloroethyl vinyl ether were zero and %Rs for acetone and 1,4-dioxane were high. Several samples had low surrogate %Rs. Positive results reported below the LOQ but above the MDL were qualified as estimated.

The data for these analyses were reviewed with reference to the SOP #HW-24 Revision #2, USEPA Region II Hazardous Waste Support Branch Validating Volatile Organic Compounds by Gas Chromatography/Mass Spectrometry SW-846 Method 8260B (August 2008), and the Department of Defense (DoD) document entitled "Quality Systems Manual (QSM) for Environmental Laboratories" (April 2009).

Tetra Tech, Inc.
Michelle L. Allen
Chemist/Data Validator

Tetra Tech, Inc.
Joseph A. Samchuck
Data Validation Quality Assurance Officer

Attachments:
1. Appendix A - Qualified Analytical Results
2. Appendix B - Results as Reported by the Laboratory
3. Appendix C – Region II Data Validation Forms
4. Appendix D - Support Documentation

Appendix A

Qualified Analytical Results

Qualifier Codes:

A = Lab Blank Contamination
B = Field Blank Contamination
C = Calibration Noncompliance (i.e., % RSDs, %Ds, ICVs, CCVs, RRFs, etc.)
C01 = GC/MS Tuning Noncompliance
D = MS/MSD Recovery Noncompliance
E = LCS/LCSD Recovery Noncompliance
F = Lab Duplicate Imprecision
G = Field Duplicate Imprecision
H = Holding Time Exceedance
I = ICP Serial Dilution Noncompliance
J = ICP PDS Recovery Noncompliance; MSA's $r < 0.995$
K = ICP Interference - includes ICS % R Noncompliance
L = Instrument Calibration Range Exceedance
M = Sample Preservation Noncompliance
N = Internal Standard Noncompliance
N01 = Internal Standard Recovery Noncompliance Dioxins
N02 = Recovery Standard Noncompliance Dioxins
N03 = Clean-up Standard Noncompliance Dioxins
O = Poor Instrument Performance (i.e., base-time drifting)
P = Uncertainty near detection limit (< 2 x IDL for inorganics and <CRQL for organics)
Q = Other problems (can encompass a number of issues; i.e.chromatography,interferences, etc.)
R = Surrogates Recovery Noncompliance
S = Pesticide/PCB Resolution
T = % Breakdown Noncompliance for DDT and Endrin
U = RPD between columns/detectors >40% for positive results determined via GC/HPLC
V = Non-linear calibrations; correlation coefficient $r < 0.995$
W = EMPC result
X = Signal to noise response drop
Y = Percent solids <30%
Z = Uncertainty at 2 sigma deviation is less than sample activity
Z1 = Tentatively Identified Compound considered presumptively present
Z2 = Tentatively Identified Compound column bleed

PROJ_NO: 02045	NSAMPLE	FT-DUP01-20111213			FT-DUP02-20111214			FT-FB01-20111213			FT-GW437-2125		
SDG: C4998	LAB_ID	C4998-18			C4998-19			C4998-06			C4998-14		
FRACTION: OV	SAMP_DATE	12/13/2011			12/14/2011			12/13/2011			12/14/2011		
MEDIA: WATER	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF	FT-GW439-3135			FT-GW437-4145								
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,1,1-TRICHLOROETHANE		0.5	U		0.5	U		0.5	U		0.5	U	
1,1,2,2-TETRACHLOROETHANE		0.5	U		0.5	U		0.5	U		0.5	U	
1,1,2-TRICHLOROETHANE		0.5	U		0.5	U		0.5	U		0.5	U	
1,1,2-TRICHLOROTRIFLUOROETHANE		0.5	U		0.5	U		0.5	U		0.5	U	
1,1-DICHLOROETHANE		0.5	U		0.5	U		0.5	U		0.5	U	
1,1-DICHLOROETHENE		0.5	U		0.5	U		0.5	U		0.5	U	
1,2,3-TRICHLOROBENZENE		0.5	U		0.5	U		0.5	U		0.5	U	
1,2,4-TRICHLOROBENZENE		0.5	U		0.5	U		0.5	U		0.5	U	
1,2-DIBROMO-3-CHLOROPROPANE		0.5	U		0.5	U		0.5	U		0.5	U	
1,2-DIBROMOETHANE		0.5	U		0.5	U		0.5	U		0.5	U	
1,2-DICHLOROBENZENE		0.5	U		0.5	U		0.5	U		0.5	U	
1,2-DICHLOROETHANE		0.5	U		0.5	U		0.5	U		0.5	U	
1,2-DICHLOROPROPANE		0.5	U		0.5	U		0.5	U		0.5	U	
1,3-DICHLOROBENZENE		0.5	U		0.5	U		0.5	U		0.5	U	
1,4-DICHLOROBENZENE		0.5	U		0.5	U		0.5	U		0.5	U	
1,4-DIOXANE		10	UR	C	10	UR	C	10	UR	C	10	UR	C
2-BUTANONE		2.5	U		2.5	U		2.5	UJ	C	2.5	UJ	C
2-CHLOROETHYL VINYL ETHER		2.5	U		2.5	U		2.5	U		2.5	U	
2-HEXANONE		2.5	U		2.5	U		2.5	U		2.5	U	
4-METHYL-2-PENTANONE		2.5	U		2.5	U		2.5	U		2.5	U	
ACETONE		2.5	UJ	C	2.5	UJ	C	2.5	UJ	C	2.5	UJ	C
BENZENE		0.5	U		0.5	U		0.5	U		0.5	U	
BROMOCHLOROMETHANE		0.5	U		0.5	U		0.5	U		0.5	U	
BROMODICHLOROMETHANE		0.5	U		0.5	U		1.9			0.5	U	
BROMOFORM		0.5	UJ	C	0.5	UJ	C	0.5	U		0.5	U	
BROMOMETHANE		0.5	UJ	C	0.5	UJ	C	0.5	UJ	C	0.5	UJ	C
CARBON DISULFIDE		0.5	UJ	C	0.5	UJ	C	0.5	U		0.5	U	
CARBON TETRACHLORIDE		0.5	U		0.5	U		0.5	U		0.5	U	
CHLOROBENZENE		0.5	U		0.5	U		0.5	U		0.5	U	
CHLORODIBROMOMETHANE		0.5	U		0.5	U		4.5			0.5	U	
CHLOROETHANE		0.5	UJ	C	0.5	UJ	C	0.5	UJ	C	0.5	UJ	C
CHLOROFORM		0.5	U		0.69	J	P	1.1			0.5	U	
CHLOROMETHANE		0.5	U		0.93	J	P	0.5	U		0.57	J	
CIS-1,2-DICHLOROETHENE		0.63	J	P	0.5	U		0.5	U		0.5	U	
CIS-1,3-DICHLOROPROPENE		0.5	U		0.5	U		0.5	U		0.5	U	

PROJ_NO: 02045	NSAMPLE	FT-GW437-3135			FT-GW437-4145			FT-GW437-5155			FT-GW438-2125		
SDG: C4998	LAB_ID	C4998-15			C4998-16			C4998-17			C4998-11		
FRACTION: OV	SAMP_DATE	12/14/2011			12/14/2011			12/14/2011			12/13/2011		
MEDIA: WATER	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,1,1-TRICHLOROETHANE		0.5	U		0.5	U		0.5	U		0.5	U	
1,1,2,2-TETRACHLOROETHANE		0.5	U		0.5	U		0.5	U		0.5	U	
1,1,2-TRICHLOROETHANE		0.5	U		0.5	U		0.5	U		0.5	U	
1,1,2-TRICHLOROTRIFLUOROETHANE		0.5	U		0.5	U		0.5	U		0.5	U	
1,1-DICHLOROETHANE		0.5	U		0.5	U		0.5	U		0.5	U	
1,1-DICHLOROETHENE		0.5	U		0.5	U		0.5	U		0.5	U	
1,2,3-TRICHLOROBENZENE		0.5	U		0.5	U		0.5	U		0.5	U	
1,2,4-TRICHLOROBENZENE		0.5	U		0.5	U		0.5	U		0.5	U	
1,2-DIBROMO-3-CHLOROPROPANE		0.5	U		0.5	U		0.5	U		0.5	U	
1,2-DIBROMOETHANE		0.5	U		0.5	U		0.5	U		0.5	U	
1,2-DICHLOROBENZENE		0.5	U		0.5	U		0.5	U		0.5	U	
1,2-DICHLOROETHANE		0.5	U		0.5	U		0.5	U		0.5	U	
1,2-DICHLOROPROPANE		0.5	U		0.5	U		0.5	U		0.5	U	
1,3-DICHLOROBENZENE		0.5	U		0.5	U		0.5	U		0.5	U	
1,4-DICHLOROBENZENE		0.5	U		0.5	U		0.5	U		0.5	U	
1,4-DIOXANE		10	UR	C	10	UR	C	10	UR	C	10	UR	C
2-BUTANONE		2.5	U		2.5	UJ	C	2.5	U		2.5	UJ	C
2-CHLOROETHYL VINYL ETHER		2.5	U		2.5	U		2.5	U		2.5	U	
2-HEXANONE		2.5	U		2.5	U		2.5	U		2.5	U	
4-METHYL-2-PENTANONE		2.5	U		2.5	U		2.5	U		2.5	U	
ACETONE		2.5	UJ	C	2.5	UJ	C	2.5	UJ	C	2.5	UJ	C
BENZENE		0.5	U		0.5	U		0.5	U		0.5	U	
BROMOCHLOROMETHANE		0.5	U		0.5	U		0.5	U		0.5	U	
BROMODICHLOROMETHANE		0.5	U		0.5	U		0.5	U		0.5	U	
BROMOFORM		0.5	UJ	C	0.5	U		0.5	UJ	C	0.5	U	
BROMOMETHANE		0.5	UJ	C	0.5	UJ	C	0.5	UJ	C	0.5	UJ	C
CARBON DISULFIDE		0.5	UJ	C	0.5	U		0.5	UJ	C	0.5	U	
CARBON TETRACHLORIDE		0.5	U		0.5	U		0.5	U		0.5	U	
CHLOROBENZENE		0.5	U		0.5	U		0.5	U		0.5	U	
CHLORODIBROMOMETHANE		0.5	U		0.5	U		0.5	U		0.5	U	
CHLOROETHANE		0.5	UJ	C	0.5	UJ	C	0.5	UJ	C	0.5	UJ	C
CHLOROFORM		0.5	U		0.5	U		0.66	J	P	0.5	U	
CHLOROMETHANE		0.83	J		0.47	J	P	0.5	U		0.67	J	P
CIS-1,2-DICHLOROETHENE		0.5	U		0.5	U		0.5	U		0.5	U	
CIS-1,3-DICHLOROPROPENE		0.5	U		0.5	U		0.5	U		0.5	U	

PROJ_NO: 02045	NSAMPLE	FT-GW438-3135			FT-GW438-4145			FT-GW438-5155			FT-GW439-2125		
SDG: C4998	LAB_ID	C4998-08			C4998-12			C4998-13			C4998-02		
FRACTION: OV	SAMP_DATE	12/13/2011			12/13/2011			12/13/2011			12/13/2011		
MEDIA: WATER	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,1,1-TRICHLOROETHANE		0.5	U		0.5	U		0.5	UJ	R	0.5	U	
1,1,2,2-TETRACHLOROETHANE		0.5	U		0.5	U		0.5	UJ	R	0.5	U	
1,1,2-TRICHLOROETHANE		0.5	U		0.5	U		0.5	UJ	R	0.5	U	
1,1,2-TRICHLOROTRIFLUOROETHANE		0.5	U		0.5	U		0.5	UJ	R	0.5	U	
1,1-DICHLOROETHANE		0.5	U		0.5	U		0.5	UJ	R	0.5	U	
1,1-DICHLOROETHENE		0.5	U		0.5	U		0.5	UJ	R	0.5	U	
1,2,3-TRICHLOROBENZENE		0.5	U		0.5	U		0.5	UJ	R	0.5	U	
1,2,4-TRICHLOROBENZENE		0.5	U		0.5	U		0.5	UJ	R	0.5	U	
1,2-DIBROMO-3-CHLOROPROPANE		0.5	U		0.5	U		0.5	UJ	R	0.5	U	
1,2-DIBROMOETHANE		0.5	U		0.5	U		0.5	UJ	R	0.5	U	
1,2-DICHLOROBENZENE		0.5	U		0.5	U		0.5	UJ	R	0.5	U	
1,2-DICHLOROETHANE		0.5	U		0.5	U		0.5	UJ	R	0.5	U	
1,2-DICHLOROPROPANE		0.5	U		0.5	U		0.5	UJ	R	0.5	U	
1,3-DICHLOROBENZENE		0.5	U		0.5	U		0.5	UJ	R	0.5	U	
1,4-DICHLOROBENZENE		0.5	U		0.5	U		0.5	UJ	R	0.5	U	
1,4-DIOXANE		10	UR	C	10	UR	C	10	UR	C	10	UR	C
2-BUTANONE		2.5	UJ	C	2.5	UJ	C	2.5	UJ	CR	2.5	UJ	C
2-CHLOROETHYL VINYL ETHER		2.5	UR	D	2.5	U		2.5	UJ	R	2.5	U	
2-HEXANONE		2.5	U		2.5	U		2.5	UJ	R	2.5	U	
4-METHYL-2-PENTANONE		2.5	U		2.5	U		2.5	UJ	R	2.5	U	
ACETONE		2.5	UJ	C	2.5	UJ	C	2.5	UJ	CR	2.5	UJ	C
BENZENE		0.5	U		0.5	U		0.5	UJ	R	0.5	U	
BROMOCHLOROMETHANE		0.5	U		0.5	U		0.5	UJ	R	0.5	U	
BROMODICHLOROMETHANE		0.5	U		0.5	U		0.5	UJ	R	0.5	U	
BROMOFORM		0.5	U		0.5	U		0.5	UJ	R	0.5	U	
BROMOMETHANE		0.5	UJ	C	0.5	UJ	C	0.5	UJ	CR	0.5	UJ	C
CARBON DISULFIDE		0.5	U		0.5	U		0.5	UJ	R	0.5	U	
CARBON TETRACHLORIDE		0.5	U		0.5	U		0.5	UJ	R	0.5	U	
CHLOROBENZENE		0.5	U		0.5	U		0.5	UJ	R	0.5	U	
CHLORODIBROMOMETHANE		0.5	U		0.5	U		0.5	UJ	R	0.5	U	
CHLOROETHANE		0.5	UJ	C	0.5	UJ	C	0.5	UJ	CR	0.5	UJ	C
CHLOROFORM		0.5	U		0.5	U		0.87	J	PR	0.5	U	
CHLOROMETHANE		0.8	J	P	1.4			0.48	J	PR	0.62	J	P
CIS-1,2-DICHLOROETHENE		0.5	U		0.5	U		0.5	UJ	R	0.5	U	
CIS-1,3-DICHLOROPROPENE		0.5	U		0.5	U		0.5	UJ	R	0.5	U	

PROJ_NO: 02045	NSAMPLE	FT-GW439-3135			FT-GW439-4145			FT-GW439-5155			FT-GW440-2125		
SDG: C4998	LAB_ID	C4998-03			C4998-04			C4998-05			C4998-20		
FRACTION: OV	SAMP_DATE	12/13/2011			12/13/2011			12/13/2011			12/14/2011		
MEDIA: WATER	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,1,1-TRICHLOROETHANE		0.5	U		0.5	U		0.5	UJ	R	0.5	UJ	R
1,1,2,2-TETRACHLOROETHANE		0.5	U		0.5	U		0.5	UJ	R	0.5	UJ	R
1,1,2-TRICHLOROETHANE		0.5	U		0.5	U		0.5	UJ	R	0.5	UJ	R
1,1,2-TRICHLOROTRIFLUOROETHANE		0.5	U		0.5	U		0.5	UJ	R	0.5	UJ	R
1,1-DICHLOROETHANE		1.3			0.63	J	P	0.5	UJ	R	0.5	UJ	R
1,1-DICHLOROETHENE		0.5	U		0.5	U		0.5	UJ	R	0.5	UJ	R
1,2,3-TRICHLOROBENZENE		0.5	U		0.5	U		0.5	UJ	R	0.5	UJ	R
1,2,4-TRICHLOROBENZENE		0.5	U		0.5	U		0.5	UJ	R	0.5	UJ	R
1,2-DIBROMO-3-CHLOROPROPANE		0.5	U		0.5	U		0.5	UJ	R	0.5	UJ	R
1,2-DIBROMOETHANE		0.5	U		0.5	U		0.5	UJ	R	0.5	UJ	R
1,2-DICHLOROBENZENE		0.5	U		0.5	U		0.5	UJ	R	0.5	UJ	R
1,2-DICHLOROETHANE		0.5	U		0.5	U		0.5	UJ	R	0.5	UJ	R
1,2-DICHLOROPROPANE		0.5	U		0.5	U		0.5	UJ	R	0.5	UJ	R
1,3-DICHLOROBENZENE		0.5	U		0.5	U		0.5	UJ	R	0.5	UJ	R
1,4-DICHLOROBENZENE		0.5	U		0.5	U		0.5	UJ	R	0.5	UJ	R
1,4-DIOXANE		10	UR	C	10	UR	C	10	UR	C	10	UR	C
2-BUTANONE		2.5	UJ	C	2.5	UJ	C	2.5	UJ	CR	2.5	UJ	R
2-CHLOROETHYL VINYL ETHER		2.5	U		2.5	U		2.5	UJ	R	2.5	UJ	R
2-HEXANONE		2.5	U		2.5	U		2.5	UJ	R	2.5	UJ	R
4-METHYL-2-PENTANONE		2.5	U		2.5	U		2.5	UJ	R	2.5	UJ	R
ACETONE		1.3	J	CP	2.5	UJ	C	2.5	UJ	CR	2.5	UJ	CR
BENZENE		0.5	U		0.5	U		0.5	UJ	R	0.5	UJ	R
BROMOCHLOROMETHANE		0.5	U		0.5	U		0.5	UJ	R	0.5	UJ	R
BROMODICHLOROMETHANE		0.5	U		0.5	U		0.5	UJ	R	0.5	UJ	R
BROMOFORM		0.5	U		0.5	U		0.5	UJ	R	0.5	UJ	CR
BROMOMETHANE		0.5	UJ	C	0.5	UJ	C	0.5	UJ	CR	0.5	UJ	CR
CARBON DISULFIDE		0.5	U		0.73	J	P	0.5	UJ	R	0.5	UJ	CR
CARBON TETRACHLORIDE		0.5	U		0.5	U		0.5	UJ	R	0.5	UJ	R
CHLOROBENZENE		0.5	U		0.5	U		0.5	UJ	R	0.5	UJ	R
CHLORODIBROMOMETHANE		0.5	U		0.5	U		0.5	UJ	R	0.5	UJ	R
CHLOROETHANE		0.5	UJ	C	0.5	UJ	C	0.5	UJ	CR	0.5	UJ	CR
CHLOROFORM		0.5	U		0.5	U		0.5	UJ	R	0.5	UJ	R
CHLOROMETHANE		0.5	U		1.3			0.5	UJ	R	0.5	UJ	R
CIS-1,2-DICHLOROETHENE		0.71	J	P	0.5	U		0.5	UJ	R	0.5	UJ	R
CIS-1,3-DICHLOROPROPENE		0.5	U		0.5	U		0.5	UJ	R	0.5	UJ	R

PROJ_NO: 02045	NSAMPLE	FT-GW440-3135			FT-GW440-4145			FT-GW440-4145RE			FT-GW440-5155		
SDG: C4998	LAB_ID	C4998-21			C4998-22			C4998-22RE			C4998-23		
FRACTION: OV	SAMP_DATE	12/14/2011			12/14/2011			12/14/2011			12/14/2011		
MEDIA: WATER	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0			100.0			0.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,1,1-TRICHLOROETHANE		0.5	U		0.5	UJ	R	0.5	U		0.5	U	
1,1,2,2-TETRACHLOROETHANE		0.5	U		0.5	UJ	R	0.5	U		0.5	U	
1,1,2-TRICHLOROETHANE		0.5	U		0.5	UJ	R	0.5	U		0.5	U	
1,1,2-TRICHLOROTRIFLUOROETHANE		0.5	U		0.5	UJ	R	0.5	U		0.5	U	
1,1-DICHLOROETHANE		0.5	U		0.5	UJ	R	0.5	U		0.5	U	
1,1-DICHLOROETHENE		0.5	U		0.5	UJ	R	0.5	U		0.5	U	
1,2,3-TRICHLOROBENZENE		0.5	U		0.5	UJ	R	0.5	U		0.5	U	
1,2,4-TRICHLOROBENZENE		0.5	U		0.5	UJ	R	0.5	U		0.5	U	
1,2-DIBROMO-3-CHLOROPROPANE		0.5	U		0.5	UJ	R	0.5	U		0.5	U	
1,2-DIBROMOETHANE		0.5	U		0.5	UJ	R	0.5	U		0.5	U	
1,2-DICHLOROBENZENE		0.5	U		0.5	UJ	R	0.5	U		0.5	U	
1,2-DICHLOROETHANE		0.5	U		0.5	UJ	R	0.5	U		0.5	U	
1,2-DICHLOROPROPANE		0.5	U		0.5	UJ	R	0.5	U		0.5	U	
1,3-DICHLOROBENZENE		0.5	U		0.5	UJ	R	0.5	U		0.5	U	
1,4-DICHLOROBENZENE		0.5	U		0.5	UJ	R	0.5	U		0.5	U	
1,4-DIOXANE		10	UR	C	10	UR	C	10	UR	C	10	UR	C
2-BUTANONE		2.5	U		2.5	UJ	R	2.5	U		2.5	U	
2-CHLOROETHYL VINYL ETHER		2.5	U		2.5	UJ	R	2.5	U		2.5	U	
2-HEXANONE		2.5	U		2.5	UJ	R	2.5	U		2.5	U	
4-METHYL-2-PENTANONE		2.5	U		2.5	UJ	R	2.5	U		2.5	U	
ACETONE		1.2	J	CP	2.5	UJ	CR	2.5	UJ	C	2.5	UJ	C
BENZENE		0.5	U		0.5	UJ	R	0.5	U		0.5	U	
BROMOCHLOROMETHANE		0.5	U		0.5	UJ	R	0.5	U		0.5	U	
BROMODICHLOROMETHANE		0.5	U		0.5	UJ	R	0.5	U		0.5	U	
BROMOFORM		0.5	UJ	C	0.5	UJ	CR	0.5	U		0.5	UJ	C
BROMOMETHANE		0.5	UJ	C	0.5	UJ	CR	0.5	UJ	C	0.5	UJ	C
CARBON DISULFIDE		0.5	UJ	C	0.5	UJ	CR	0.5	U		0.5	UJ	C
CARBON TETRACHLORIDE		0.5	U		0.5	UJ	R	0.5	U		0.5	U	
CHLOROBENZENE		0.5	U		0.5	UJ	R	0.5	U		0.5	U	
CHLORODIBROMOMETHANE		0.5	U		0.5	UJ	R	0.5	U		0.5	U	
CHLOROETHANE		0.5	UJ	C	0.5	UJ	CR	0.5	UJ	C	0.5	UJ	C
CHLOROFORM		0.77	J	P	0.78	J	PR	0.73	J		0.76	J	P
CHLOROMETHANE		0.5	U		0.5	UJ	R	0.5	U		0.5	U	
CIS-1,2-DICHLOROETHENE		0.5	U		0.5	UJ	R	0.5	U		0.5	U	
CIS-1,3-DICHLOROPROPENE		0.5	U		0.5	UJ	R	0.5	U		0.5	U	

PROJ_NO: 02045	NSAMPLE	FT-RB01-20111213			FT-TB01-20111213		
SDG: C4998	LAB_ID	C4998-07			C4998-01		
FRACTION: OV	SAMP_DATE	12/13/2011			12/13/2011		
MEDIA: WATER	QC_TYPE	NM			NM		
	UNITS	UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0		
	DUP_OF						
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD
1,1,1-TRICHLOROETHANE		0.5	UJ	R	0.5	U	
1,1,2,2-TETRACHLOROETHANE		0.5	UJ	R	0.5	U	
1,1,2-TRICHLOROETHANE		0.5	UJ	R	0.5	U	
1,1,2-TRICHLOROTRIFLUOROETHANE		0.5	UJ	R	0.5	U	
1,1-DICHLOROETHANE		0.5	UJ	R	0.5	U	
1,1-DICHLOROETHENE		0.5	UJ	R	0.5	U	
1,2,3-TRICHLOROBENZENE		0.5	UJ	R	0.5	U	
1,2,4-TRICHLOROBENZENE		0.5	UJ	R	0.5	U	
1,2-DIBROMO-3-CHLOROPROPANE		0.5	UJ	R	0.5	U	
1,2-DIBROMOETHANE		0.5	UJ	R	0.5	U	
1,2-DICHLOROBENZENE		0.5	UJ	R	0.5	U	
1,2-DICHLOROETHANE		0.5	UJ	R	0.5	U	
1,2-DICHLOROPROPANE		0.5	UJ	R	0.5	U	
1,3-DICHLOROBENZENE		0.5	UJ	R	0.5	U	
1,4-DICHLOROBENZENE		0.5	UJ	R	0.5	U	
1,4-DIOXANE		10	UR	C	10	UR	C
2-BUTANONE		2.5	UJ	CR	2.5	UJ	C
2-CHLOROETHYL VINYL ETHER		2.5	UJ	R	2.5	U	
2-HEXANONE		2.5	UJ	R	2.5	U	
4-METHYL-2-PENTANONE		2.5	UJ	R	2.5	U	
ACETONE		2.5	UJ	CR	2.5	UJ	C
BENZENE		0.5	UJ	R	0.5	U	
BROMOCHLOROMETHANE		0.5	UJ	R	0.5	U	
BROMODICHLOROMETHANE		0.5	UJ	R	0.5	U	
BROMOFORM		0.5	UJ	R	0.5	U	
BROMOMETHANE		0.5	UJ	CR	0.5	UJ	C
CARBON DISULFIDE		0.5	UJ	R	0.5	U	
CARBON TETRACHLORIDE		0.5	UJ	R	0.5	U	
CHLOROBENZENE		0.5	UJ	R	0.5	U	
CHLORODIBROMOMETHANE		0.5	UJ	R	0.5	U	
CHLOROETHANE		0.5	UJ	CR	0.5	UJ	C
CHLOROFORM		0.5	UJ	R	0.5	U	
CHLOROMETHANE		0.5	UJ	R	0.5	U	
CIS-1,2-DICHLOROETHENE		0.5	UJ	R	0.5	U	
CIS-1,3-DICHLOROPROPENE		0.5	UJ	R	0.5	U	

PROJ_NO: 02045	NSAMPLE	FT-DUP01-20111213			FT-DUP02-20111214			FT-FB01-20111213			FT-GW437-2125		
SDG: C4998	LAB_ID	C4998-18			C4998-19			C4998-06			C4998-14		
FRACTION: OV	SAMP_DATE	12/13/2011			12/14/2011			12/13/2011			12/14/2011		
MEDIA: WATER	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF	FT-GW439-3135			FT-GW437-4145								
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
CYCLOHEXANE		0.5	U		0.5	U		0.5	U		0.5	U	
DICHLORODIFLUOROMETHANE		0.5	U		0.5	U		0.5	U		0.5	U	
ETHYLBENZENE		0.5	U		0.5	U		0.5	U		0.5	U	
ISOPROPYLBENZENE		0.5	U		0.5	U		0.5	U		0.5	U	
M+P-XYLENES		1	U		1	U		1	U		1	U	
METHYL ACETATE		0.5	UJ	C	0.5	UJ	C	0.5	UJ	C	0.5	UJ	C
METHYL CYCLOHEXANE		0.5	U		0.5	U		0.5	U		0.5	U	
METHYL TERT-BUTYL ETHER		0.5	U		0.5	U		0.5	U		0.5	U	
METHYLENE CHLORIDE		0.5	U		0.5	U		0.5	U		0.5	U	
O-XYLENE		0.5	U		0.5	U		0.5	U		0.5	U	
STYRENE		0.5	U		0.5	U		0.5	UJ	C	0.5	UJ	C
TETRACHLOROETHENE		0.5	U		0.5	U		0.5	U		0.5	U	
TOLUENE		0.5	U		0.5	U		0.5	U		0.5	U	
TRANS-1,2-DICHLOROETHENE		0.5	U		0.5	U		0.5	U		0.5	U	
TRANS-1,3-DICHLOROPROPENE		0.5	U		0.5	U		0.5	U		0.5	U	
TRICHLOROETHENE		0.5	U		0.5	U		0.5	U		1.3		
TRICHLOROFLUOROMETHANE		0.5	U		0.5	U		0.5	U		0.5	U	
VINYL CHLORIDE		0.5	U		0.5	U		0.5	U		0.5	U	

PROJ_NO: 02045	NSAMPLE	FT-GW437-3135			FT-GW437-4145			FT-GW437-5155			FT-GW438-2125		
SDG: C4998	LAB_ID	C4998-15			C4998-16			C4998-17			C4998-11		
FRACTION: OV	SAMP_DATE	12/14/2011			12/14/2011			12/14/2011			12/13/2011		
MEDIA: WATER	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
CYCLOHEXANE		0.5	U		0.5	U		0.5	U		0.5	U	
DICHLORODIFLUOROMETHANE		0.5	U		0.5	U		0.5	U		0.5	U	
ETHYLBENZENE		0.5	U		0.5	U		0.5	U		0.5	U	
ISOPROPYLBENZENE		0.5	U		0.5	U		0.5	U		0.5	U	
M+P-XYLENES		1	U		1	U		1	U		1	U	
METHYL ACETATE		0.5	UJ	C	0.5	UJ	C	0.5	UJ	C	0.5	UJ	C
METHYL CYCLOHEXANE		0.5	U		0.5	U		0.5	U		0.5	U	
METHYL TERT-BUTYL ETHER		0.5	U		0.5	U		0.5	U		0.5	U	
METHYLENE CHLORIDE		0.5	U		0.5	U		0.5	U		0.5	U	
O-XYLENE		0.5	U		0.5	U		0.5	U		0.5	U	
STYRENE		0.5	U		0.5	UJ	C	0.5	U		0.5	UJ	C
TETRACHLOROETHENE		0.5	U		0.5	U		0.5	U		0.5	U	
TOLUENE		0.5	U		0.5	U		0.5	U		0.5	U	
TRANS-1,2-DICHLOROETHENE		0.5	U		0.5	U		0.5	U		0.5	U	
TRANS-1,3-DICHLOROPROPENE		0.5	U		0.5	U		0.5	U		0.5	U	
TRICHLOROETHENE		0.5	U		0.5	U		0.5	U		0.5	U	
TRICHLOROFLUOROMETHANE		0.5	U		0.5	U		0.5	U		0.5	U	
VINYL CHLORIDE		0.5	U		0.5	U		0.5	U		0.5	U	

PROJ_NO: 02045	NSAMPLE	FT-GW438-3135			FT-GW438-4145			FT-GW438-5155			FT-GW439-2125		
SDG: C4998	LAB_ID	C4998-08			C4998-12			C4998-13			C4998-02		
FRACTION: OV	SAMP_DATE	12/13/2011			12/13/2011			12/13/2011			12/13/2011		
MEDIA: WATER	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
CYCLOHEXANE		0.5	U		0.5	U		0.5	UJ	R	0.5	U	
DICHLORODIFLUOROMETHANE		0.5	U		0.5	U		0.5	UJ	R	0.5	U	
ETHYLBENZENE		0.5	U		0.5	U		0.5	UJ	R	0.5	U	
ISOPROPYLBENZENE		0.5	U		0.5	U		0.5	UJ	R	0.5	U	
M+P-XYLENES		1	U		1	U		1	UJ	R	1	U	
METHYL ACETATE		0.5	UJ	C	0.5	UJ	C	0.5	UJ	CR	0.5	UJ	C
METHYL CYCLOHEXANE		0.5	U		0.5	U		0.5	UJ	R	0.5	U	
METHYL TERT-BUTYL ETHER		0.5	U		0.5	U		0.5	UJ	R	0.5	U	
METHYLENE CHLORIDE		0.5	U		0.5	U		0.5	UJ	R	0.5	U	
O-XYLENE		0.5	U		0.5	U		0.5	UJ	R	0.5	U	
STYRENE		0.5	UJ	C	0.5	UJ	C	0.5	UJ	CR	0.5	UJ	C
TETRACHLOROETHENE		0.5	U		0.5	U		0.5	UJ	R	0.5	U	
TOLUENE		0.5	U		0.5	U		0.5	UJ	R	0.5	U	
TRANS-1,2-DICHLOROETHENE		0.5	U		0.5	U		0.5	UJ	R	0.5	U	
TRANS-1,3-DICHLOROPROPENE		0.5	U		0.5	U		0.5	UJ	R	0.5	U	
TRICHLOROETHENE		0.5	U		0.5	U		0.5	UJ	R	0.5	U	
TRICHLOROFLUOROMETHANE		0.5	U		0.5	U		0.5	UJ	R	0.5	U	
VINYL CHLORIDE		0.5	U		0.5	U		0.5	UJ	R	0.5	U	

PROJ_NO: 02045	NSAMPLE	FT-GW439-3135			FT-GW439-4145			FT-GW439-5155			FT-GW440-2125		
SDG: C4998	LAB_ID	C4998-03			C4998-04			C4998-05			C4998-20		
FRACTION: OV	SAMP_DATE	12/13/2011			12/13/2011			12/13/2011			12/14/2011		
MEDIA: WATER	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
CYCLOHEXANE		0.5	U		0.5	U		0.5	UJ	R	0.5	UJ	R
DICHLORODIFLUOROMETHANE		0.5	U		0.5	U		0.5	UJ	R	0.5	UJ	R
ETHYLBENZENE		0.5	U		0.5	U		0.5	UJ	R	0.5	UJ	R
ISOPROPYLBENZENE		0.5	U		0.5	U		0.5	UJ	R	0.5	UJ	R
M+P-XYLENES		1	U		1	U		1	UJ	R	1	UJ	R
METHYL ACETATE		0.5	UJ	C	0.5	UJ	C	0.5	UJ	CR	0.5	UJ	CR
METHYL CYCLOHEXANE		0.5	U		0.5	U		0.5	UJ	R	0.5	UJ	R
METHYL TERT-BUTYL ETHER		0.5	U		0.5	U		0.5	UJ	R	0.5	UJ	R
METHYLENE CHLORIDE		0.5	U		0.5	U		0.5	UJ	R	0.5	UJ	R
O-XYLENE		0.5	U		0.5	U		0.5	UJ	R	0.5	UJ	R
STYRENE		0.5	UJ	C	0.5	UJ	C	0.5	UJ	CR	0.5	UJ	R
TETRACHLOROETHENE		0.5	U		0.5	U		0.5	UJ	R	0.5	UJ	R
TOLUENE		0.5	U		0.5	U		0.5	UJ	R	0.5	UJ	R
TRANS-1,2-DICHLOROETHENE		0.5	U		0.5	U		0.5	UJ	R	0.5	UJ	R
TRANS-1,3-DICHLOROPROPENE		0.5	U		0.5	U		0.5	UJ	R	0.5	UJ	R
TRICHLOROETHENE		0.5	U		0.5	U		0.5	UJ	R	0.5	UJ	R
TRICHLOROFLUOROMETHANE		0.5	U		0.5	U		0.5	UJ	R	0.5	UJ	R
VINYL CHLORIDE		0.5	U		0.5	U		0.5	UJ	R	0.5	UJ	R

PROJ_NO: 02045	NSAMPLE	FT-GW440-3135			FT-GW440-4145			FT-GW440-4145RE			FT-GW440-5155		
SDG: C4998	LAB_ID	C4998-21			C4998-22			C4998-22RE			C4998-23		
FRACTION: OV	SAMP_DATE	12/14/2011			12/14/2011			12/14/2011			12/14/2011		
MEDIA: WATER	QC_TYPE	NM			NM			NM			NM		
	UNITS	UG/L			UG/L			UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0			100.0			0.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
CYCLOHEXANE		0.5	U		0.5	UJ	R	0.5	U		0.5	U	
DICHLORODIFLUOROMETHANE		0.5	U		0.5	UJ	R	0.5	U		0.5	U	
ETHYLBENZENE		0.5	U		0.5	UJ	R	0.5	U		0.5	U	
ISOPROPYLBENZENE		0.5	U		0.5	UJ	R	0.5	U		0.5	U	
M+P-XYLENES		1	U		1	UJ	R	1	U		1	U	
METHYL ACETATE		0.5	UJ	C	0.5	UJ	CR	0.5	UJ	C	0.5	UJ	C
METHYL CYCLOHEXANE		0.5	U		0.5	UJ	R	0.5	U		0.5	U	
METHYL TERT-BUTYL ETHER		0.5	U		0.5	UJ	R	0.5	U		0.5	U	
METHYLENE CHLORIDE		0.5	U		0.5	UJ	R	0.5	U		0.5	U	
O-XYLENE		0.5	U		0.5	UJ	R	0.5	U		0.5	U	
STYRENE		0.5	U		0.5	UJ	R	0.5	U		0.5	U	
TETRACHLOROETHENE		0.5	U		0.5	UJ	R	0.5	U		0.5	U	
TOLUENE		0.5	U		0.5	UJ	R	0.5	U		0.41	J	P
TRANS-1,2-DICHLOROETHENE		0.5	U		0.5	UJ	R	0.5	U		0.5	U	
TRANS-1,3-DICHLOROPROPENE		0.5	U		0.5	UJ	R	0.5	U		0.5	U	
TRICHLOROETHENE		0.5	U		0.5	UJ	R	0.5	U		0.5	U	
TRICHLOROFLUOROMETHANE		0.5	U		0.5	UJ	R	0.5	U		0.5	U	
VINYL CHLORIDE		0.5	U		0.5	UJ	R	0.5	U		0.5	U	

PROJ_NO: 02045	NSAMPLE	FT-RB01-20111213			FT-TB01-20111213		
SDG: C4998	LAB_ID	C4998-07			C4998-01		
FRACTION: OV	SAMP_DATE	12/13/2011			12/13/2011		
MEDIA: WATER	QC_TYPE	NM			NM		
	UNITS	UG/L			UG/L		
	PCT_SOLIDS	0.0			0.0		
	DUP_OF						
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD
CYCLOHEXANE		0.5	UJ	R	0.5	U	
DICHLORODIFLUOROMETHANE		0.5	UJ	R	0.5	U	
ETHYLBENZENE		0.5	UJ	R	0.5	U	
ISOPROPYLBENZENE		0.5	UJ	R	0.5	U	
M+P-XYLENES		1	UJ	R	1	U	
METHYL ACETATE		0.5	UJ	CR	0.5	UJ	C
METHYL CYCLOHEXANE		0.5	UJ	R	0.5	U	
METHYL TERT-BUTYL ETHER		0.5	UJ	R	0.5	U	
METHYLENE CHLORIDE		0.5	UJ	R	0.5	U	
O-XYLENE		0.5	UJ	R	0.5	U	
STYRENE		0.5	UJ	CR	0.5	UJ	C
TETRACHLOROETHENE		0.5	UJ	R	0.5	U	
TOLUENE		0.5	UJ	R	0.5	U	
TRANS-1,2-DICHLOROETHENE		0.5	UJ	R	0.5	U	
TRANS-1,3-DICHLOROPROPENE		0.5	UJ	R	0.5	U	
TRICHLOROETHENE		0.5	UJ	R	0.5	U	
TRICHLOROFLUOROMETHANE		0.5	UJ	R	0.5	U	
VINYL CHLORIDE		0.5	UJ	R	0.5	U	

APPENDIX G

BACKGROUND COMPARISON

BACKGROUND COMPARISONS

To determine if site chemical concentrations are consistent with background chemical concentrations the background threshold value comparison method was conducted. The background threshold value comparison involves comparing the site maximum concentration to the background threshold value. 95 percent upper prediction limits (UPLs) were used to represent the background threshold values. An UPL is the upper bound of a prediction interval on the mean. If site conditions are representative of background conditions then a typical site concentration should have a probability of 0.95 of being less than the UPL. Therefore, a site concentration exceeding the background 95 percent UPL most likely is not representative of background conditions.

For the background comparison if the site maximum detected concentration exceeded the 95 percent UPL than it is concluded that site concentrations exceed background concentrations, otherwise site concentrations are concluded to be consistent with background concentrations. UPLs were calculated using ProUCL Version 4.1.00. Based on ProUCL a minimum of 10 samples with four detections are necessary to calculate statistics. Therefore UPLs were only calculated when there were at least four detected concentration and at least 10 samples.

The table below presents site and background frequency of detection, site and background maximum detected concentrations, background UPLs, and a conclusion as to whether site concentrations are above background concentrations. Antimony, beryllium, copper, cyanide, selenium, and thallium were not detected in at least one of the two datasets and therefore a comparison of site and background concentrations was not appropriate. The majority of the zinc samples were flagged as "rejected" during the data validation process and were removed from the analysis. After the rejected data were removed only three samples were left and therefore a UPL could not be calculated and therefore a comparison of site and background concentrations was not appropriate. The background data sets for cobalt and mercury only contained three detections so UPLs could not be calculated and therefore a comparison of site and background concentrations was not appropriate. The maximum site concentration of calcium was greater than the background 95 percent UPL and therefore it can be concluded that site calcium concentrations are not consistent with background concentrations. For aluminum, arsenic, barium, cadmium, chromium, iron, lead, magnesium, manganese, potassium, and selenium the site maximum concentrations were less than the background 95 percent UPLs. Therefore site concentrations for these chemicals are consistent with background concentrations.

COMPARISON OF SITE AND BACKGROUND CONCENTRATIONS						
PARAMETER	SITE FOD	BACKGROUND FOD	SITE MAXIMUM DETECT	BACKGROUND MAXIMUM DETECT	BACKGROUND UPL(1)	SITE CONCENTRATION ABOVE BACKGROUND?
ALUMINUM	6 / 6	12 / 12	5820	16300	18500	NO
ANTIMONY	0 / 6	0 / 12	--	--	--	--
ARSENIC	5 / 6	12 / 12	1.58	23.25	14.5	NO
BARIUM	6 / 6	10 / 12	10.8	22.9	23.3	NO
BERYLLIUM	3 / 6	0 / 12	0.125	--	--	--
CADMIUM	5 / 6	10 / 11	0.201	3.1	2.8	NO
CALCIUM	6 / 6	7 / 12	841	452	236	YES
CHROMIUM	6 / 6	10 / 12	5.87	32.7	64.2	NO
COBALT	4 / 6	3 / 12	1.24	4.9	--	--
COPPER	0 / 6	1 / 12	--	21.875	--	--
CYANIDE	1 / 6	0 / 12	0.038	--	--	--
IRON	6 / 6	12 / 12	4420	15800	17100	NO
LEAD	3 / 6	12 / 12	3.99	48.7	37.5	NO
MAGNESIUM	6 / 6	10 / 12	501	1640	1702	NO
MANGANESE	6 / 6	12 / 12	34.7	102	99.2	NO
MERCURY	3 / 6	3 / 12	0.021	0.475	--	--
NICKEL	6 / 6	4 / 12	2.18	6.8	6.2	NO
POTASSIUM	2 / 6	7 / 12	82.8	345	355	NO
SELENIUM	1 / 6	0 / 12	0.55	--	--	--
SODIUM	0 / 6	12 / 12	--	274	284	--
THALLIUM	0 / 6	0 / 12	--	--	--	--
VANADIUM	6 / 6	12 / 12	9.26	61.8	51.3	NO
ZINC	6 / 6	2 / 3	10.9	35.8	--	--

(1) A minimum of four detections are required by ProUCL to compute statistics.
FOD – Frequency of Detection
UPL – Upper Prediction Limit

PROUCL PRINOUTS

	General Background Statistics for Data Sets with Non-Detects
User Selected Options	
From File	Converted_Data.wst
Full Precision	OFF
Confidence Coefficient	95%
Coverage	90%
Different or Future K Values	1
Number of Bootstrap Operations	2000

BARIUM

General Statistics

Number of Valid Data	12	Number of Detected Data	10
Number of Distinct Detected Data	10	Number of Non-Detect Data	2
Tolerance Factor	2.21	Percent Non-Detects	16.67%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	4.9	Minimum Detected	1.589
Maximum Detected	22.9	Maximum Detected	3.131
Mean of Detected	12.07	Mean of Detected	2.365
SD of Detected	6.178	SD of Detected	0.538
Minimum Non-Detect	4.15	Minimum Non-Detect	1.423
Maximum Non-Detect	4.2	Maximum Non-Detect	1.435

Data with Multiple Detection Limits	Single Detection Limit Scenario	
Note: Data have multiple DLs - Use of KM Method is recommended	Number treated as Non-Detect with Single DL	2
For all methods (except KM, DL/2, and ROS Methods),	Number treated as Detected with Single DL	10
Observations < Largest ND are treated as NDs	Single DL Non-Detect Percentage	16.67%

Background Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.929	Shapiro Wilk Test Statistic	0.947
5% Shapiro Wilk Critical Value	0.842	5% Shapiro Wilk Critical Value	0.842
Data appear Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	10.41	Mean (Log Scale)	2.094
SD	6.806	SD (Log Scale)	0.8
95% UTL 90% Coverage	25.45	95% UTL 90% Coverage	47.5
95% UPL (t)	23.13	95% UPL (t)	36.17
90% Percentile (z)	19.13	90% Percentile (z)	22.61
95% Percentile (z)	21.6	95% Percentile (z)	30.23
99% Percentile (z)	26.24	99% Percentile (z)	52.13
Maximum Likelihood Estimate(MLE) Method		Log ROS Method	
Mean	10.1	Mean in Original Scale	10.55
SD	7.061	SD in Original Scale	6.621
95% UTL with 90% Coverage	25.7	95% UTL with 90% Coverage	40.19
		95% BCA UTL with 90% Coverage	22.53
		95% Bootstrap (%) UTL with 90% Coverage	22.9
95% UPL (t)	23.3	95% UPL (t)	31.68
90% Percentile (z)	19.15	90% Percentile (z)	21.02
95% Percentile (z)	21.71	95% Percentile (z)	27.09
99% Percentile (z)	26.52	99% Percentile (z)	43.59

BARIUM (Continued)

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only	
k star (bias corrected)	2.967	Data appear Normal at 5% Significance Level	
Theta Star	4.068		
nu star	59.34		
A-D Test Statistic	0.276	**Nonparametric Statistics**	
5% A-D Critical Value	0.729	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.169	Mean	10.87
5% K-S Critical Value	0.268	SD	5.98
Data appear Gamma Distributed at 5% Significance Level		SE of Mean	1.82
		95% KM UTL with 90% Coverage	24.09
Assuming Gamma Distribution		95% KM Chebyshev UPL	38.01
Gamma ROS Statistics with Extrapolated Data		95% KM UPL (t)	22.05
Mean	10.06	90% Percentile (z)	18.54
Median	9.195	95% Percentile (z)	20.71
SD	7.301	99% Percentile (z)	24.79
k star	0.255		
Theta star	39.4	**Gamma ROS Limits with Extrapolated Data**	
Nu star	6.127	95% Wilson Hilferty (WH) Approx. Gamma UPL	47.11
95% Percentile of Chisquare (2k)	2.456	95% Hawkins Wixley (HW) Approx. Gamma UPL	69.59
		95% WH Approx. Gamma UTL with 90% Coverage	60.73
90% Percentile	30.14	95% HW Approx. Gamma UTL with 90% Coverage	96.87
95% Percentile	48.38		
99% Percentile	96.78		

Note: DL/2 is not a recommended method.

CADMIUM

General Statistics			
Number of Valid Data	11	Number of Detected Data	10
Number of Distinct Detected Data	2	Number of Non-Detect Data	1
Tolerance Factor	2.275	Percent Non-Detects	9.09%
Number of Missing Values	1		

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.04	Minimum Detected	-3.219
Maximum Detected	3.1	Maximum Detected	1.131
Mean of Detected	0.652	Mean of Detected	-2.349
SD of Detected	1.29	SD of Detected	1.834
Minimum Non-Detect	0.04	Minimum Non-Detect	-3.219
Maximum Non-Detect	0.04	Maximum Non-Detect	-3.219

Warning: Data set has only 2 Distinct Detected Values.
This may not be adequate enough to compute meaningful and reliable test statistics and estimates.
The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., EPC, BTV).

Unless Data Quality Objectives (DQOs) have been met, it is suggested to collect additional observations.

The number of detected data may not be adequate enough to perform GOF tests, bootstrap, and ROS methods.
Those methods will return a 'N/A' value on your output display!

It is necessary to have 4 or more Distinct Values for bootstrap methods.
However, results obtained using 4 to 9 distinct values may not be reliable.
It is recommended to have 10 to 15 or more observations for accurate and meaningful results and estimates.

Background Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.51	Shapiro Wilk Test Statistic	0.51
5% Shapiro Wilk Critical Value	0.842	5% Shapiro Wilk Critical Value	0.842
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.595	Mean (Log Scale)	-2.491
SD	1.239	SD (Log Scale)	1.803
95% UTL 90% Coverage	3.413	95% UTL 90% Coverage	5.005
95% UPL (t)	2.94	95% UPL (t)	2.514
90% Percentile (z)	2.182	90% Percentile (z)	0.835
95% Percentile (z)	2.632	95% Percentile (z)	1.607
99% Percentile (z)	3.476	99% Percentile (z)	5.491
Maximum Likelihood Estimate(MLE) Method		Log ROS Method	
Mean	0.519	Mean in Original Scale	0.593
SD	1.257	SD in Original Scale	1.24
95% UTL with 90% Coverage	3.378	95% UTL with 90% Coverage	6.907
		95% BCA UTL with 90% Coverage	N/A
		95% Bootstrap (%) UTL with 90% Coverage	N/A
95% UPL (t)	2.898	95% UPL (t)	3.197
90% Percentile (z)	2.13	90% Percentile (z)	0.931
95% Percentile (z)	2.586	95% Percentile (z)	1.938
99% Percentile (z)	3.443	99% Percentile (z)	7.661

CADMIUM (Continued)

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only	
k star (bias corrected)	0.312	Data do not follow a Discernable Distribution (0.05)	
Theta Star	2.092		
nu star	6.234		
A-D Test Statistic	2.627	**Nonparametric Statistics**	
5% A-D Critical Value	0.804	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.509	Mean	0.596
5% K-S Critical Value	0.286	SD	1.18
Data not Gamma Distributed at 5% Significance Level		SE of Mean	0.375
		95% KM UTL with 90% Coverage	3.281
Assuming Gamma Distribution		95% KM Chebyshev UPL	5.97
Gamma ROS Statistics with Extrapolated Data		95% KM UPL (t)	2.831
Mean	0.593	90% Percentile (z)	2.109
Median	0.04	95% Percentile (z)	2.538
SD	1.24	99% Percentile (z)	3.342
k star	0.241		
Theta star	2.46	**Gamma ROS Limits with Extrapolated Data**	
Nu star	5.301	95% Wilson Hilferty (WH) Approx. Gamma UPL	2.847
95% Percentile of Chisquare (2k)	2.358	95% Hawkins Wixley (HW) Approx. Gamma UPL	3.001
		95% WH Approx. Gamma UTL with 90% Coverage	4.092
90% Percentile	1.783	95% HW Approx. Gamma UTL with 90% Coverage	4.63
95% Percentile	2.9		
99% Percentile	5.89		

Note: DL/2 is not a recommended method.

CALCIUM

General Statistics			
Number of Valid Data	12	Number of Detected Data	7
Number of Distinct Detected Data	7	Number of Non-Detect Data	5
Tolerance Factor	2.21	Percent Non-Detects	41.67%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	226	Minimum Detected	5.421
Maximum Detected	452	Maximum Detected	6.114
Mean of Detected	306	Mean of Detected	5.693
SD of Detected	85.65	SD of Detected	0.264
Minimum Non-Detect	208	Minimum Non-Detect	5.338
Maximum Non-Detect	221	Maximum Non-Detect	5.398

Data with Multiple Detection Limits	Single Detection Limit Scenario	
Note: Data have multiple DLs - Use of KM Method is recommended	Number treated as Non-Detect with Single DL	5
For all methods (except KM, DL/2, and ROS Methods),	Number treated as Detected with Single DL	7
Observations < Largest ND are treated as NDs	Single DL Non-Detect Percentage	41.67%

Warning: There are only 7 Detected Values in this data

Note: It should be noted that even though bootstrap may be performed on this data set the resulting calculations may not be reliable enough to draw conclusions

It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.

Background Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.87	Shapiro Wilk Test Statistic	0.902
5% Shapiro Wilk Critical Value	0.803	5% Shapiro Wilk Critical Value	0.803
Data appear Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	223	Mean (Log Scale)	5.266
SD	120.6	SD (Log Scale)	0.562
95% UTL 90% Coverage	489.4	95% UTL 90% Coverage	670.6
95% UPL (t)	448.3	95% UPL (t)	553.7
90% Percentile (z)	377.5	90% Percentile (z)	398
95% Percentile (z)	421.3	95% Percentile (z)	488.1
99% Percentile (z)	503.4	99% Percentile (z)	715.9
Maximum Likelihood Estimate(MLE) Method		Log ROS Method	
Mean	236	Mean in Original Scale	239.1
SD	110.6	SD in Original Scale	104.4
95% UTL with 90% Coverage	480.5	95% UTL with 90% Coverage	557.5
		95% BCA UTL with 90% Coverage	452
		95% Bootstrap (%) UTL with 90% Coverage	452
95% UPL (t)	442.8	95% UPL (t)	483
90% Percentile (z)	377.8	90% Percentile (z)	377.3
95% Percentile (z)	418	95% Percentile (z)	439.6
99% Percentile (z)	493.3	99% Percentile (z)	585.4

CALCIUM (Continued)

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only	
k star (bias corrected)	9.402	Data appear Normal at 5% Significance Level	
Theta Star	32.55		
nu star	131.6		
A-D Test Statistic	0.422	**Nonparametric Statistics**	
5% A-D Critical Value	0.707	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.218	Mean	272.7
5% K-S Critical Value	0.312	SD	72.27
Data appear Gamma Distributed at 5% Significance Level		SE of Mean	22.54
		95% KM UTL with 90% Coverage	432.4
Assuming Gamma Distribution		95% KM Chebyshev UPL	600.6
Gamma ROS Statistics with Extrapolated Data		95% KM UPL (t)	407.8
Mean	181	90% Percentile (z)	365.3
Median	227	95% Percentile (z)	391.5
SD	167.1	99% Percentile (z)	440.8
k star	0.151		
Theta star	1201	**Gamma ROS Limits with Extrapolated Data**	
Nu star	3.618	95% Wilson Hilferty (WH) Approx. Gamma UPL	1081
95% Percentile of Chisquare (2k)	1.658	95% Hawkins Wixley (HW) Approx. Gamma UPL	1642
		95% WH Approx. Gamma UTL with 90% Coverage	1472
90% Percentile	537.2	95% HW Approx. Gamma UTL with 90% Coverage	2465
95% Percentile	995.3		
99% Percentile	2324		

Note: DL/2 is not a recommended method.

CHROMIUM

General Statistics			
Number of Valid Data	12	Number of Detected Data	10
Number of Distinct Detected Data	10	Number of Non-Detect Data	2
Tolerance Factor	2.21	Percent Non-Detects	16.67%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	3.4	Minimum Detected	1.224
Maximum Detected	32.7	Maximum Detected	3.487
Mean of Detected	11.26	Mean of Detected	2.229
SD of Detected	8.283	SD of Detected	0.641
Minimum Non-Detect	2	Minimum Non-Detect	0.693
Maximum Non-Detect	2.1	Maximum Non-Detect	0.742

Data with Multiple Detection Limits	Single Detection Limit Scenario	
Note: Data have multiple DLs - Use of KM Method is recommended	Number treated as Non-Detect with Single DL	2
For all methods (except KM, DL/2, and ROS Methods),	Number treated as Detected with Single DL	10
Observations < Largest ND are treated as NDs	Single DL Non-Detect Percentage	16.67%

Background Statistics			
Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.764	Shapiro Wilk Test Statistic	0.95
5% Shapiro Wilk Critical Value	0.842	5% Shapiro Wilk Critical Value	0.842
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	9.554	Mean (Log Scale)	1.862
SD	8.485	SD (Log Scale)	1.035
95% UTL 90% Coverage	28.31	95% UTL 90% Coverage	63.44
95% UPL (t)	25.41	95% UPL (t)	44.57
90% Percentile (z)	20.43	90% Percentile (z)	24.26
95% Percentile (z)	23.51	95% Percentile (z)	35.33
99% Percentile (z)	29.29	99% Percentile (z)	71.56
Maximum Likelihood Estimate(MLE) Method		Log ROS Method	
Mean	8.845	Mean in Original Scale	9.732
SD	9.157	SD in Original Scale	8.298
95% UTL with 90% Coverage	29.08	95% UTL with 90% Coverage	44.38
		95% BCA UTL with 90% Coverage	30.89
		95% Bootstrap (%) UTL with 90% Coverage	32.7
95% UPL (t)	25.96	95% UPL (t)	33.56
90% Percentile (z)	20.58	90% Percentile (z)	20.73
95% Percentile (z)	23.91	95% Percentile (z)	27.92
99% Percentile (z)	30.15	99% Percentile (z)	48.82

CHROMIUM (Continued)

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only	
k star (bias corrected)	1.996	Data appear Gamma Distributed at 5% Significance Level	
Theta Star	5.641		
nu star	39.92		
A-D Test Statistic	0.4	**Nonparametric Statistics**	
5% A-D Critical Value	0.733	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.168	Mean	9.95
5% K-S Critical Value	0.269	SD	7.748
Data appear Gamma Distributed at 5% Significance Level		SE of Mean	2.358
		95% KM UTL with 90% Coverage	27.07
Assuming Gamma Distribution		95% KM Chebyshev UPL	45.1
Gamma ROS Statistics with Extrapolated Data		95% KM UPL (t)	24.43
Mean	9.383	90% Percentile (z)	19.88
Median	8.55	95% Percentile (z)	22.69
SD	8.68	99% Percentile (z)	27.97
k star	0.252		
Theta star	37.17	**Gamma ROS Limits with Extrapolated Data**	
Nu star	6.059	95% Wilson Hilferty (WH) Approx. Gamma UPL	44.31
95% Percentile of Chisquare (2k)	2.437	95% Hawkins Wixley (HW) Approx. Gamma UPL	64.21
		95% WH Approx. Gamma UTL with 90% Coverage	57.39
90% Percentile	28.14	95% HW Approx. Gamma UTL with 90% Coverage	89.7
95% Percentile	45.29		
99% Percentile	90.86		

Note: DL/2 is not a recommended method.

COBALT

General Statistics			
Number of Valid Data	12	Number of Detected Data	3
Number of Distinct Detected Data	3	Number of Non-Detect Data	9

Warning: Data set has only 3 Detected Values.
This is not enough to compute meaningful and reliable test statistics and estimates.
No statistics will be produced!

Tolerance Factor	2.21	Percent Non-Detects	75.00%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	1.825	Minimum Detected	0.602
Maximum Detected	4.9	Maximum Detected	1.589
Mean of Detected	3.242	Mean of Detected	1.096
SD of Detected	1.552	SD of Detected	0.494
Minimum Non-Detect	2	Minimum Non-Detect	0.693
Maximum Non-Detect	2.2	Maximum Non-Detect	0.788

Data with Multiple Detection Limits	Single Detection Limit Scenario	
Note: Data have multiple DLs - Use of KM Method is recommended	Number treated as Non-Detect with Single DL	10
For all methods (except KM, DL/2, and ROS Methods),	Number treated as Detected with Single DL	2
Observations < Largest ND are treated as NDs	Single DL Non-Detect Percentage	83.33%

Warning: There are only 3 Distinct Detected Values in this data set
The number of detected data may not be adequate enough to perform GOF tests, bootstrap, and ROS methods.
Those methods will return a 'N/A' value on your output display!

It is necessary to have 4 or more Distinct Values for bootstrap methods.
However, results obtained using 4 to 9 distinct values may not be reliable.
It is recommended to have 10 to 15 or more observations for accurate and meaningful results and estimates.

Background Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.982	Shapiro Wilk Test Statistic	1
5% Shapiro Wilk Critical Value	0.767	5% Shapiro Wilk Critical Value	0.767
Data appear Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	1.602	Mean (Log Scale)	0.314
SD	1.19	SD (Log Scale)	0.517
95% UTL 90% Coverage	4.232	95% UTL 90% Coverage	4.293
95% UPL (t)	3.826	95% UPL (t)	3.6
90% Percentile (z)	3.127	90% Percentile (z)	2.657
95% Percentile (z)	3.559	95% Percentile (z)	3.206
99% Percentile (z)	4.37	99% Percentile (z)	4.56
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
		Mean in Original Scale	2.152
		SD in Original Scale	1.011
		Mean in Log Scale	0.687
		SD in Log Scale	0.395
		95% UTL 90% Coverage	4.758
		95% UPL (t)	4.159
		90% Percentile (z)	3.298
		95% Percentile (z)	3.806
		99% Percentile (z)	4.982

COBALT (Continued)

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only	
k star (bias corrected)	N/A	Data appear Normal at 5% Significance Level	
Theta Star	N/A		
nu star	N/A		
A-D Test Statistic	N/A	**Nonparametric Statistics**	
5% A-D Critical Value	N/A	Kaplan-Meier (KM) Method	
K-S Test Statistic	N/A	Mean	2.179
5% K-S Critical Value	N/A	SD	0.882
Data not Gamma Distributed at 5% Significance Level		SE of Mean	0.312
		95% KM UTL with 90% Coverage	4.128
Assuming Gamma Distribution		95% KM Chebyshev UPL	6.18
Gamma ROS Statistics with Extrapolated Data		95% KM UPL (t)	3.827
Mean	N/A	90% Percentile (z)	3.309
Median	N/A	95% Percentile (z)	3.63
SD	N/A	99% Percentile (z)	4.231
k star	N/A		
Theta star	N/A	**Gamma ROS Limits with Extrapolated Data**	
Nu star	N/A	95% Wilson Hilferty (WH) Approx. Gamma UPL	N/A
95% Percentile of Chisquare (2k)	N/A	95% Hawkins Wixley (HW) Approx. Gamma UPL	N/A
		95% WH Approx. Gamma UTL with 90% Coverage	N/A
90% Percentile	N/A	95% HW Approx. Gamma UTL with 90% Coverage	N/A
95% Percentile	N/A		
99% Percentile	N/A		

Note: DL/2 is not a recommended method.

COPPER

General Statistics

Number of Valid Data	12	Number of Detected Data	1
Number of Distinct Detected Data	1	Number of Non-Detect Data	11

Warning: Only one distinct data value was detected! ProUCL (or any other software) should not be used on such a data set!
It is suggested to use alternative site specific values determined by the Project Team to estimate environmental parameters (e.g., EPC, BTV).

The data set for variable COPPER was not processed!

MAGNESIUM

General Statistics			
Number of Valid Data	12	Number of Detected Data	10
Number of Distinct Detected Data	10	Number of Non-Detect Data	2
Tolerance Factor	2.21	Percent Non-Detects	16.67%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	122	Minimum Detected	4.804
Maximum Detected	1640	Maximum Detected	7.402
Mean of Detected	782.9	Mean of Detected	6.444
SD of Detected	495.3	SD of Detected	0.766
Minimum Non-Detect	81.4	Minimum Non-Detect	4.399
Maximum Non-Detect	83.5	Maximum Non-Detect	4.425

Data with Multiple Detection Limits	Single Detection Limit Scenario	
Note: Data have multiple DLs - Use of KM Method is recommended	Number treated as Non-Detect with Single DL	2
For all methods (except KM, DL/2, and ROS Methods),	Number treated as Detected with Single DL	10
Observations < Largest ND are treated as NDs	Single DL Non-Detect Percentage	16.67%

Background Statistics			
Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.918	Shapiro Wilk Test Statistic	0.934
5% Shapiro Wilk Critical Value	0.842	5% Shapiro Wilk Critical Value	0.842
Data appear Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	659.3	Mean (Log Scale)	5.99
SD	533	SD (Log Scale)	1.267
95% UTL 90% Coverage	1837	95% UTL 90% Coverage	6560
95% UPL (t)	1656	95% UPL (t)	4260
90% Percentile (z)	1342	90% Percentile (z)	2024
95% Percentile (z)	1536	95% Percentile (z)	3206
99% Percentile (z)	1899	99% Percentile (z)	7602
Maximum Likelihood Estimate(MLE) Method		Log ROS Method	
Mean	613.6	Mean in Original Scale	670.9
SD	582.5	SD in Original Scale	518.8
95% UTL with 90% Coverage	1901	95% UTL with 90% Coverage	3995
		95% BCA UTL with 90% Coverage	1640
		95% Bootstrap (%) UTL with 90% Coverage	1640
95% UPL (t)	1702	95% UPL (t)	2873
90% Percentile (z)	1360	90% Percentile (z)	1627
95% Percentile (z)	1572	95% Percentile (z)	2312
99% Percentile (z)	1969	99% Percentile (z)	4471

MAGNESIUM (Continued)

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only	
k star (bias corrected)	1.77	Data appear Normal at 5% Significance Level	
Theta Star	442.4		
nu star	35.39		
A-D Test Statistic	0.211	**Nonparametric Statistics**	
5% A-D Critical Value	0.734	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.126	Mean	672.8
5% K-S Critical Value	0.269	SD	494.7
Data appear Gamma Distributed at 5% Significance Level		SE of Mean	150.5
		95% KM UTL with 90% Coverage	1766
Assuming Gamma Distribution		95% KM Chebyshev UPL	2917
Gamma ROS Statistics with Extrapolated Data		95% KM UPL (t)	1597
Mean	652.4	90% Percentile (z)	1307
Median	615.5	95% Percentile (z)	1486
SD	541.9	99% Percentile (z)	1823
k star	0.216		
Theta star	3026	**Gamma ROS Limits with Extrapolated Data**	
Nu star	5.175	95% Wilson Hilferty (WH) Approx. Gamma UPL	3133
95% Percentile of Chisquare (2k)	2.178	95% Hawkins Wixley (HW) Approx. Gamma UPL	4594
		95% WH Approx. Gamma UTL with 90% Coverage	4067
90% Percentile	1972	95% HW Approx. Gamma UTL with 90% Coverage	6445
95% Percentile	3295		
99% Percentile	6893		

Note: DL/2 is not a recommended method.

MERCURY

General Statistics

Number of Valid Data	12	Number of Detected Data	3
Number of Distinct Detected Data	3	Number of Non-Detect Data	9

Warning: Data set has only 3 Detected Values.
This is not enough to compute meaningful and reliable test statistics and estimates.
No statistics will be produced!

Tolerance Factor	2.21	Percent Non-Detects	75.00%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.09	Minimum Detected	-2.408
Maximum Detected	0.475	Maximum Detected	-0.744
Mean of Detected	0.225	Mean of Detected	-1.787
SD of Detected	0.217	SD of Detected	0.908
Minimum Non-Detect	0.09	Minimum Non-Detect	-2.408
Maximum Non-Detect	0.11	Maximum Non-Detect	-2.207

Data with Multiple Detection Limits	Single Detection Limit Scenario	
Note: Data have multiple DLs - Use of KM Method is recommended	Number treated as Non-Detect with Single DL	10
For all methods (except KM, DL/2, and ROS Methods),	Number treated as Detected with Single DL	2
Observations < Largest ND are treated as NDs	Single DL Non-Detect Percentage	83.33%

Warning: There are only 3 Distinct Detected Values in this data set
The number of detected data may not be adequate enough to perform GOF tests, bootstrap, and ROS methods.
Those methods will return a 'N/A' value on your output display!

It is necessary to have 4 or more Distinct Values for bootstrap methods.
However, results obtained using 4 to 9 distinct values may not be reliable.
It is recommended to have 10 to 15 or more observations for accurate and meaningful results and estimates.

Background Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.789	Shapiro Wilk Test Statistic	0.839
5% Shapiro Wilk Critical Value	0.767	5% Shapiro Wilk Critical Value	0.767
Data appear Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.0929	Mean (Log Scale)	-2.712
SD	0.122	SD (Log Scale)	0.682
95% UTL 90% Coverage	0.363	95% UTL 90% Coverage	0.3
95% UPL (t)	0.321	95% UPL (t)	0.237
90% Percentile (z)	0.249	90% Percentile (z)	0.159
95% Percentile (z)	0.294	95% Percentile (z)	0.204
99% Percentile (z)	0.377	99% Percentile (z)	0.324
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
		Mean in Original Scale	0.0728
		SD in Original Scale	0.131
		Mean in Log Scale	-3.513
		SD in Log Scale	1.307
		95% UTL 90% Coverage	0.535
		95% UPL (t)	0.343
		90% Percentile (z)	0.159
		95% Percentile (z)	0.256
		99% Percentile (z)	0.623

MERCURY (Continued)

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only	
k star (bias corrected)	N/A	Data appear Normal at 5% Significance Level	
Theta Star	N/A		
nu star	N/A		
A-D Test Statistic	N/A	**Nonparametric Statistics**	
5% A-D Critical Value	N/A	Kaplan-Meier (KM) Method	
K-S Test Statistic	N/A	Mean	0.124
5% K-S Critical Value	N/A	SD	0.106
Data not Gamma Distributed at 5% Significance Level		SE of Mean	0.0375
		95% KM UTL with 90% Coverage	0.358
Assuming Gamma Distribution		95% KM Chebyshev UPL	0.605
Gamma ROS Statistics with Extrapolated Data		95% KM UPL (t)	0.322
Mean	N/A	90% Percentile (z)	0.26
Median	N/A	95% Percentile (z)	0.298
SD	N/A	99% Percentile (z)	0.37
k star	N/A		
Theta star	N/A	**Gamma ROS Limits with Extrapolated Data**	
Nu star	N/A	95% Wilson Hilferty (WH) Approx. Gamma UPL	N/A
95% Percentile of Chisquare (2k)	N/A	95% Hawkins Wixley (HW) Approx. Gamma UPL	N/A
		95% WH Approx. Gamma UTL with 90% Coverage	N/A
90% Percentile	N/A	95% HW Approx. Gamma UTL with 90% Coverage	N/A
95% Percentile	N/A		
99% Percentile	N/A		

Note: DL/2 is not a recommended method.

NICKEL

General Statistics			
Number of Valid Data	12	Number of Detected Data	4
Number of Distinct Detected Data	4	Number of Non-Detect Data	8
Tolerance Factor	2.21	Percent Non-Detects	66.67%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	5.2	Minimum Detected	1.649
Maximum Detected	6.8	Maximum Detected	1.917
Mean of Detected	6.2	Mean of Detected	1.819
SD of Detected	0.735	SD of Detected	0.123
Minimum Non-Detect	4.1	Minimum Non-Detect	1.411
Maximum Non-Detect	4.4	Maximum Non-Detect	1.482

Data with Multiple Detection Limits	Single Detection Limit Scenario	
Note: Data have multiple DLs - Use of KM Method is recommended	Number treated as Non-Detect with Single DL	8
For all methods (except KM, DL/2, and ROS Methods),	Number treated as Detected with Single DL	4
Observations < Largest ND are treated as NDs	Single DL Non-Detect Percentage	66.67%

Warning: There are only 4 Distinct Detected Values in this data

Note: It should be noted that even though bootstrap may be performed on this data set the resulting calculations may not be reliable enough to draw conclusions

It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.

Background Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.889	Shapiro Wilk Test Statistic	0.877
5% Shapiro Wilk Critical Value	0.748	5% Shapiro Wilk Critical Value	0.748
Data appear Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	3.477	Mean (Log Scale)	1.106
SD	2.048	SD (Log Scale)	0.531
95% UTL 90% Coverage	8.003	95% UTL 90% Coverage	9.772
95% UPL (t)	7.305	95% UPL (t)	8.154
90% Percentile (z)	6.101	90% Percentile (z)	5.968
95% Percentile (z)	6.845	95% Percentile (z)	7.238
99% Percentile (z)	8.241	99% Percentile (z)	10.39
Maximum Likelihood Estimate(MLE) Method		Log ROS Method	
Mean	6.208	Mean in Original Scale	4.76
SD	0.636	SD in Original Scale	1.182
95% UTL with 90% Coverage	7.614	95% UTL with 90% Coverage	7.821
		95% BCA UTL with 90% Coverage	6.8
		95% Bootstrap (%) UTL with 90% Coverage	6.8
95% UPL (t)	7.397	95% UPL (t)	7.215
90% Percentile (z)	7.023	90% Percentile (z)	6.278
95% Percentile (z)	7.254	95% Percentile (z)	6.842
99% Percentile (z)	7.688	99% Percentile (z)	8.039

NICKEL (Continued)

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only	
k star (bias corrected)	22.71	Data appear Normal at 5% Significance Level	
Theta Star	0.273		
nu star	181.7		
A-D Test Statistic	0.394	**Nonparametric Statistics**	
5% A-D Critical Value	0.656	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.283	Mean	5.533
5% K-S Critical Value	0.394	SD	0.598
Data appear Gamma Distributed at 5% Significance Level		SE of Mean	0.199
		95% KM UTL with 90% Coverage	6.854
Assuming Gamma Distribution		95% KM Chebyshev UPL	8.245
Gamma ROS Statistics with Extrapolated Data		95% KM UPL (t)	6.651
Mean	2.813	90% Percentile (z)	6.299
Median	2.031	95% Percentile (z)	6.516
SD	2.721	99% Percentile (z)	6.924
k star	0.204		
Theta star	13.76	**Gamma ROS Limits with Extrapolated Data**	
Nu star	4.907	95% Wilson Hilferty (WH) Approx. Gamma UPL	15.36
95% Percentile of Chisquare (2k)	2.095	95% Hawkins Wixley (HW) Approx. Gamma UPL	22.47
		95% WH Approx. Gamma UTL with 90% Coverage	20.54
90% Percentile	8.507	95% HW Approx. Gamma UTL with 90% Coverage	32.73
95% Percentile	14.41		
99% Percentile	30.6		

Note: DL/2 is not a recommended method.

POTASSIUM

General Statistics			
Number of Valid Data	12	Number of Detected Data	7
Number of Distinct Detected Data	7	Number of Non-Detect Data	5
Tolerance Factor	2.21	Percent Non-Detects	41.67%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	147	Minimum Detected	4.99
Maximum Detected	345	Maximum Detected	5.844
Mean of Detected	239.4	Mean of Detected	5.407
SD of Detected	96.96	SD of Detected	0.409
Minimum Non-Detect	122	Minimum Non-Detect	4.804
Maximum Non-Detect	129	Maximum Non-Detect	4.86

Data with Multiple Detection Limits	Single Detection Limit Scenario	
Note: Data have multiple DLs - Use of KM Method is recommended	Number treated as Non-Detect with Single DL	5
For all methods (except KM, DL/2, and ROS Methods),	Number treated as Detected with Single DL	7
Observations < Largest ND are treated as NDs	Single DL Non-Detect Percentage	41.67%

Warning: There are only 7 Detected Values in this data

Note: It should be noted that even though bootstrap may be performed on this data set the resulting calculations may not be reliable enough to draw conclusions

It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.

Background Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.756	Shapiro Wilk Test Statistic	0.78
5% Shapiro Wilk Critical Value	0.803	5% Shapiro Wilk Critical Value	0.803
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	

Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	165.8	Mean (Log Scale)	4.878
SD	115.8	SD (Log Scale)	0.72
95% UTL 90% Coverage	421.7	95% UTL 90% Coverage	644.9
95% UPL (t)	382.3	95% UPL (t)	504.5
90% Percentile (z)	314.2	90% Percentile (z)	330.5
95% Percentile (z)	356.3	95% Percentile (z)	429.3
99% Percentile (z)	435.2	99% Percentile (z)	701.2
Maximum Likelihood Estimate(MLE) Method		Log ROS Method	
Mean	152.7	Mean in Original Scale	172.9
SD	132.8	SD in Original Scale	109.2
95% UTL with 90% Coverage	446.2	95% UTL with 90% Coverage	566.2
		95% BCA UTL with 90% Coverage	344.9
		95% Bootstrap (%) UTL with 90% Coverage	345
95% UPL (t)	400.9	95% UPL (t)	458.9
90% Percentile (z)	322.9	90% Percentile (z)	319.4
95% Percentile (z)	371.1	95% Percentile (z)	399.6
99% Percentile (z)	461.6	99% Percentile (z)	608.4

POTASSIUM (Continued)

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only	
k star (bias corrected)	4.179	Data follow Appr. Gamma Distribution at 5% Significance Level	
Theta Star	57.3		
nu star	58.5		
A-D Test Statistic	0.844	**Nonparametric Statistics**	
5% A-D Critical Value	0.709	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.291	Mean	200.9
5% K-S Critical Value	0.313	SD	82.32
Data follow Appx. Gamma Distribution at 5% Significance Level		SE of Mean	25.67
		95% KM UTL with 90% Coverage	382.8
Assuming Gamma Distribution		95% KM Chebyshev UPL	574.4
Gamma ROS Statistics with Extrapolated Data		95% KM UPL (t)	354.8
Mean	139.7	90% Percentile (z)	306.4
Median	149	95% Percentile (z)	336.3
SD	142.6	99% Percentile (z)	392.4
k star	0.136		
Theta star	1030	**Gamma ROS Limits with Extrapolated Data**	
Nu star	3.255	95% Wilson Hilferty (WH) Approx. Gamma UPL	872.4
95% Percentile of Chisquare (2k)	1.52	95% Hawkins Wixley (HW) Approx. Gamma UPL	1316
		95% WH Approx. Gamma UTL with 90% Coverage	1207
90% Percentile	407.3	95% HW Approx. Gamma UTL with 90% Coverage	2023
95% Percentile	782.8		
99% Percentile	1896		

Note: DL/2 is not a recommended method.

ZINC

General Statistics

Number of Valid Data	3	Number of Detected Data	2
Number of Distinct Detected Data	2	Number of Non-Detect Data	1

Warning: This data set only has 3 observations!
Data set is too small to compute reliable and meaningful statistics and estimates!
The data set for variable ZINC was not processed!

It is suggested to collect at least 8 to 10 observations before using these statistical methods!
If possible, compute and collect Data Quality Objectives (DQO) based sample size and analytical results.

	General Background Statistics for Full Data Sets
User Selected Options	
From File	Converted_Data.wst
Full Precision	OFF
Confidence Coefficient	95%
Coverage	90%
Different or Future K Values	1
Number of Bootstrap Operations	2000

ALUMINUM

General Statistics

Total Number of Observations	12	Number of Distinct Observations	11
Tolerance Factor	2.21		

Raw Statistics		Log-Transformed Statistics	
Minimum	948	Minimum	6.854
Maximum	16300	Maximum	9.699
Second Largest	16300	Second Largest	9.699
First Quartile	3983	First Quartile	8.259
Median	8105	Median	8.992
Third Quartile	12050	Third Quartile	9.396
Mean	8178	Mean	8.685
SD	5496	SD	0.965
Coefficient of Variation	0.672		
Skewness	0.177		

Background Statistics

Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.933	Shapiro Wilk Test Statistic	0.892
Shapiro Wilk Critical Value	0.859	Shapiro Wilk Critical Value	0.859
Data appear Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
95% UTL with 90% Coverage	20324	95% UTL with 90% Coverage	49880
95% UPL (t)	18451	95% UPL (t)	35901
90% Percentile (z)	15221	90% Percentile (z)	20363
95% Percentile (z)	17218	95% Percentile (z)	28912
99% Percentile (z)	20963	99% Percentile (z)	55806
Gamma Distribution Test		Data Distribution Test	
k star	1.322	Data appear Normal at 5% Significance Level	
Theta Star	6186		
MLE of Mean	8178		
MLE of Standard Deviation	7112		
nu star	31.73		
A-D Test Statistic	0.359	Nonparametric Statistics	
5% A-D Critical Value	0.744	90% Percentile	15980
K-S Test Statistic	0.158	95% Percentile	16300
5% K-S Critical Value	0.249	99% Percentile	16300
Data appear Gamma Distributed at 5% Significance Level			
Assuming Gamma Distribution		95% UTL with 90% Coverage	16300
90% Percentile	17577	95% Percentile Bootstrap UTL with 90% Coverage	16300
95% Percentile	22232	95% BCA Bootstrap UTL with 90% Coverage	16300
99% Percentile	32831	95% UPL	16300
		95% Chebyshev UPL	33112
95% WH Approx. Gamma UPL	24208	Upper Threshold Limit Based upon IQR	24151
95% HW Approx. Gamma UPL	25940		
95% WH Approx. Gamma UTL with 90% Coverage	29101		
95% HW Approx. Gamma UTL with 90% Coverage	31910		

ARSENIC

General Statistics			
Total Number of Observations	12	Number of Distinct Observations	12
Tolerance Factor	2.21		

Raw Statistics		Log-Transformed Statistics	
Minimum	0.63	Minimum	-0.462
Maximum	23.25	Maximum	3.146
Second Largest	7.5	Second Largest	2.015
First Quartile	1.055	First Quartile	0.0506
Median	2.15	Median	0.765
Third Quartile	2.8	Third Quartile	1.023
Mean	4.047	Mean	0.801
SD	6.32	SD	1.003
Coefficient of Variation	1.562		
Skewness	3.007		

Background Statistics			
Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.546	Shapiro Wilk Test Statistic	0.912
Shapiro Wilk Critical Value	0.859	Shapiro Wilk Critical Value	0.859
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
95% UTL with 90% Coverage	18.01	95% UTL with 90% Coverage	20.47
95% UPL (t)	15.86	95% UPL (t)	14.54
90% Percentile (z)	12.15	90% Percentile (z)	8.063
95% Percentile (z)	14.44	95% Percentile (z)	11.61
99% Percentile (z)	18.75	99% Percentile (z)	23.01
Gamma Distribution Test		Data Distribution Test	
k star	0.784	Data appear Lognormal at 5% Significance Level	
Theta Star	5.163		
MLE of Mean	4.047		
MLE of Standard Deviation	4.571		
nu star	18.81		
A-D Test Statistic	1.004	Nonparametric Statistics	
5% A-D Critical Value	0.758	90% Percentile	7.09
K-S Test Statistic	0.272	95% Percentile	14.59
5% K-S Critical Value	0.253	99% Percentile	21.52
Data not Gamma Distributed at 5% Significance Level			
Assuming Gamma Distribution		95% UTL with 90% Coverage	23.25
90% Percentile	9.889	95% Percentile Bootstrap UTL with 90% Coverage	23.25
95% Percentile	13.22	95% BCA Bootstrap UTL with 90% Coverage	21.68
99% Percentile	21.12	95% UPL	23.25
		95% Chebyshev UPL	32.72
95% WH Approx. Gamma UPL	14.01	Upper Threshold Limit Based upon IQR	5.418
95% HW Approx. Gamma UPL	13.96		
95% WH Approx. Gamma UTL with 90% Coverage	17.54		
95% HW Approx. Gamma UTL with 90% Coverage	17.86		

IRON

General Statistics			
Total Number of Observations	12	Number of Distinct Observations	12
Tolerance Factor	2.21		

Raw Statistics		Log-Transformed Statistics	
Minimum	1845	Minimum	7.52
Maximum	15800	Maximum	9.668
Second Largest	13200	Second Largest	9.488
First Quartile	4520	First Quartile	8.403
Median	8635	Median	9.057
Third Quartile	11921	Third Quartile	9.386
Mean	8254	Mean	8.805
SD	4737	SD	0.752
Coefficient of Variation	0.574		
Skewness	-0.0111		

Background Statistics			
Normal Distribution Test		**Lognormal Distribution Test**	
Shapiro Wilk Test Statistic	0.936	Shapiro Wilk Test Statistic	0.884
Shapiro Wilk Critical Value	0.859	Shapiro Wilk Critical Value	0.859
Data appear Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% UTL with 90% Coverage	18722	95% UTL with 90% Coverage	35116
95% UPL (t)	17108	95% UPL (t)	27180
90% Percentile (z)	14324	90% Percentile (z)	17475
95% Percentile (z)	16045	95% Percentile (z)	22962
99% Percentile (z)	19273	99% Percentile (z)	38325
Gamma Distribution Test		**Data Distribution Test**	
k star	1.93	**Data appear Normal at 5% Significance Level**	
Theta Star	4278		
MLE of Mean	8254		
MLE of Standard Deviation	5942		
nu star	46.31		
A-D Test Statistic	0.466	**Nonparametric Statistics**	
5% A-D Critical Value	0.74	90% Percentile	13109
K-S Test Statistic	0.184	95% Percentile	14370
5% K-S Critical Value	0.248	99% Percentile	15514
Data appear Gamma Distributed at 5% Significance Level			
Assuming Gamma Distribution		95% UTL with 90% Coverage	15800
90% Percentile	16190	95% Percentile Bootstrap UTL with 90% Coverage	15800
95% Percentile	19803	95% BCA Bootstrap UTL with 90% Coverage	15540
99% Percentile	27834	95% UPL	15800
		95% Chebyshev UPL	29744
95% WH Approx. Gamma UPL	21157	Upper Threshold Limit Based upon IQR	23023
95% HW Approx. Gamma UPL	22188		
95% WH Approx. Gamma UTL with 90% Coverage	24830		
95% HW Approx. Gamma UTL with 90% Coverage	26481		

LEAD

General Statistics			
Total Number of Observations	12	Number of Distinct Observations	11
Tolerance Factor	2.21		

Raw Statistics		Log-Transformed Statistics	
Minimum	4.2	Minimum	1.435
Maximum	48.7	Maximum	3.886
Second Largest	20.8	Second Largest	3.035
First Quartile	7.375	First Quartile	1.997
Median	8.85	Median	2.18
Third Quartile	15.1	Third Quartile	2.694
Mean	13.62	Mean	2.366
SD	12.28	SD	0.673
Coefficient of Variation	0.901		
Skewness	2.451		

Background Statistics			
Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.686	Shapiro Wilk Test Statistic	0.922
Shapiro Wilk Critical Value	0.859	Shapiro Wilk Critical Value	0.859
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
95% UTL with 90% Coverage	40.76	95% UTL with 90% Coverage	47.12
95% UPL (t)	36.57	95% UPL (t)	37.47
90% Percentile (z)	29.36	90% Percentile (z)	25.24
95% Percentile (z)	33.82	95% Percentile (z)	32.22
99% Percentile (z)	42.19	99% Percentile (z)	50.96
Gamma Distribution Test		Data Distribution Test	
k star	1.698	Data appear Lognormal at 5% Significance Level	
Theta Star	8.02		
MLE of Mean	13.62		
MLE of Standard Deviation	10.45		
nu star	40.76		
A-D Test Statistic	0.755	Nonparametric Statistics	
5% A-D Critical Value	0.741	90% Percentile	20.8
K-S Test Statistic	0.252	95% Percentile	33.36
5% K-S Critical Value	0.248	99% Percentile	45.63
Data not Gamma Distributed at 5% Significance Level			
Assuming Gamma Distribution		95% UTL with 90% Coverage	48.7
90% Percentile	27.54	95% Percentile Bootstrap UTL with 90% Coverage	48.7
95% Percentile	34.05	95% BCA Bootstrap UTL with 90% Coverage	45.91
99% Percentile	48.64	95% UPL	48.7
		95% Chebyshev UPL	69.33
95% WH Approx. Gamma UPL	35.97	Upper Threshold Limit Based upon IQR	26.69
95% HW Approx. Gamma UPL	36.16		
95% WH Approx. Gamma UTL with 90% Coverage	42.57		
95% HW Approx. Gamma UTL with 90% Coverage	43.31		

MANGANESE

General Statistics			
Total Number of Observations	12	Number of Distinct Observations	12
Tolerance Factor	2.21		

Raw Statistics		Log-Transformed Statistics	
Minimum	3.1	Minimum	1.131
Maximum	102	Maximum	4.625
Second Largest	95.6	Second Largest	4.56
First Quartile	15.55	First Quartile	2.656
Median	35.25	Median	3.562
Third Quartile	45.76	Third Quartile	3.821
Mean	39.21	Mean	3.243
SD	32.1	SD	1.104
Coefficient of Variation	0.819		
Skewness	0.992		

Background Statistics			
Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.878	Shapiro Wilk Test Statistic	0.905
Shapiro Wilk Critical Value	0.859	Shapiro Wilk Critical Value	0.859
Data appear Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
95% UTL with 90% Coverage	110.2	95% UTL with 90% Coverage	294.2
95% UPL (t)	99.22	95% UPL (t)	201.9
90% Percentile (z)	80.35	90% Percentile (z)	105.5
95% Percentile (z)	92.01	95% Percentile (z)	157.6
99% Percentile (z)	113.9	99% Percentile (z)	334.5
Gamma Distribution Test		Data Distribution Test	
k star	1.043	Data appear Normal at 5% Significance Level	
Theta Star	37.6		
MLE of Mean	39.21		
MLE of Standard Deviation	38.4		
nu star	25.03		
A-D Test Statistic	0.37	Nonparametric Statistics	
5% A-D Critical Value	0.75	90% Percentile	91.21
K-S Test Statistic	0.162	95% Percentile	98.48
5% K-S Critical Value	0.251	99% Percentile	101.3
Data appear Gamma Distributed at 5% Significance Level			
Assuming Gamma Distribution		95% UTL with 90% Coverage	102
90% Percentile	89.36	95% Percentile Bootstrap UTL with 90% Coverage	102
95% Percentile	115.7	95% BCA Bootstrap UTL with 90% Coverage	102
99% Percentile	176.8	95% UPL	102
		95% Chebyshev UPL	184.8
95% WH Approx. Gamma UPL	127.3	Upper Threshold Limit Based upon IQR	91.08
95% HW Approx. Gamma UPL	137.3		
95% WH Approx. Gamma UTL with 90% Coverage	155.6		
95% HW Approx. Gamma UTL with 90% Coverage	172.3		

SODIUM

General Statistics			
Total Number of Observations	12	Number of Distinct Observations	11
Tolerance Factor	2.21		

Raw Statistics		Log-Transformed Statistics	
Minimum	209	Minimum	5.342
Maximum	274	Maximum	5.613
Second Largest	273	Second Largest	5.609
First Quartile	218.8	First Quartile	5.388
Median	231	Median	5.442
Third Quartile	253.5	Third Quartile	5.534
Mean	237.7	Mean	5.466
SD	24.5	SD	0.101
Coefficient of Variation	0.103		
Skewness	0.537		

Background Statistics			
Normal Distribution Test		**Lognormal Distribution Test**	
Shapiro Wilk Test Statistic	0.88	Shapiro Wilk Test Statistic	0.893
Shapiro Wilk Critical Value	0.859	Shapiro Wilk Critical Value	0.859
Data appear Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% UTL with 90% Coverage	291.8	95% UTL with 90% Coverage	295.9
95% UPL (t)	283.5	95% UPL (t)	285.9
90% Percentile (z)	269.1	90% Percentile (z)	269.3
95% Percentile (z)	278	95% Percentile (z)	279.4
99% Percentile (z)	294.7	99% Percentile (z)	299.4
Gamma Distribution Test		**Data Distribution Test**	
k star	78.95	**Data appear Normal at 5% Significance Level**	
Theta Star	3.01		
MLE of Mean	237.7		
MLE of Standard Deviation	26.75		
nu star	1895		
A-D Test Statistic	0.53	**Nonparametric Statistics**	
5% A-D Critical Value	0.731	90% Percentile	273
K-S Test Statistic	0.182	95% Percentile	273.5
5% K-S Critical Value	0.245	99% Percentile	273.9
Data appear Gamma Distributed at 5% Significance Level			
Assuming Gamma Distribution		95% UTL with 90% Coverage	274
90% Percentile	272.5	95% Percentile Bootstrap UTL with 90% Coverage	274
95% Percentile	283.3	95% BCA Bootstrap UTL with 90% Coverage	273.9
99% Percentile	304.3	95% UPL	274
		95% Chebyshev UPL	348.8
95% WH Approx. Gamma UPL	285	Upper Threshold Limit Based upon IQR	305.6
95% HW Approx. Gamma UPL	285.2		
95% WH Approx. Gamma UTL with 90% Coverage	294.4		
95% HW Approx. Gamma UTL with 90% Coverage	294.8		

VANADIUM

General Statistics			
Total Number of Observations	12	Number of Distinct Observations	12
Tolerance Factor	2.21		

Raw Statistics		Log-Transformed Statistics	
Minimum	6.1	Minimum	1.808
Maximum	61.8	Maximum	4.124
Second Largest	28.9	Second Largest	3.364
First Quartile	9.175	First Quartile	2.206
Median	17.25	Median	2.846
Third Quartile	22.13	Third Quartile	3.092
Mean	19.57	Mean	2.751
SD	15.25	SD	0.682
Coefficient of Variation	0.779		
Skewness	2.115		

Background Statistics			
Normal Distribution Test		Lognormal Distribution Test	
Shapiro Wilk Test Statistic	0.779	Shapiro Wilk Test Statistic	0.953
Shapiro Wilk Critical Value	0.859	Shapiro Wilk Critical Value	0.859
Data not Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
95% UTL with 90% Coverage	53.27	95% UTL with 90% Coverage	70.69
95% UPL (t)	48.08	95% UPL (t)	56.04
90% Percentile (z)	39.11	90% Percentile (z)	37.53
95% Percentile (z)	44.65	95% Percentile (z)	48.09
99% Percentile (z)	55.05	99% Percentile (z)	76.53
Gamma Distribution Test		Data Distribution Test	
k star	1.856	Data appear Gamma Distributed at 5% Significance Level	
Theta Star	10.54		
MLE of Mean	19.57		
MLE of Standard Deviation	14.36		
nu star	44.55		
A-D Test Statistic	0.334	Nonparametric Statistics	
5% A-D Critical Value	0.741	90% Percentile	28.62
K-S Test Statistic	0.128	95% Percentile	43.71
5% K-S Critical Value	0.248	99% Percentile	58.18
Data appear Gamma Distributed at 5% Significance Level			
Assuming Gamma Distribution		95% UTL with 90% Coverage	61.8
90% Percentile	38.73	95% Percentile Bootstrap UTL with 90% Coverage	61.8
95% Percentile	47.53	95% BCA Bootstrap UTL with 90% Coverage	61.8
99% Percentile	67.13	95% UPL	61.8
		95% Chebyshev UPL	88.76
95% WH Approx. Gamma UPL	50.34	Upper Threshold Limit Based upon IQR	41.55
95% HW Approx. Gamma UPL	51.29		
95% WH Approx. Gamma UTL with 90% Coverage	59.24		
95% HW Approx. Gamma UTL with 90% Coverage	61.15		

APPENDIX H

SUPPORTING INFORMATION FOR HUMAN HEALTH RISK ASSESSMENT

H.1 Samples Used in Risk Assessment
H.2 RAGS Part D Tables
H.3 ProUCL Outputs
H.4 Sample Calculations
H.5 RAGS Part D Tables for Chemicals Present at Naturally Occurring Levels

APPENDIX H.1

SAMPLES USED IN RISK ASSESSMENT

TABLE 1
SAMPLES USED IN THE HUMAN HEALTH RISH ASSESSMENT

Surface Soil	Subsurface Soil	Groundwater
FT-SB-411-0002	FT-SB-401-0608	FT-MW-01I-20110314
FT-SB-413-0002	FT-SB-402-0608	FT-MW01I-20111018
	FT-SB-403-0608	FT-MW-01S-20110314
	FT-SB-403-0608-D	FT-MW01S-20111018
	FT-SB-404-0305	FT-MW-02I-20110315
	FT-SB-404-0608	FT-MW02I-20110929
	FT-SB-405-0204	FT-MW-02S-20110315
	FT-SB-405-0608	FT-MW-02S-20110315-D
	FT-SB-406-0406	FT-MW02S-20110929
	FT-SB-407-0608	FT-MW02S-20110929-D
	FT-SB-408-1517	FT-MW-03-20110314
	FT-SB-409-1315	FT-MW03S-20111018
	FT-SB-410-1416	FT-MW-04-20110314
	FT-SB-410-1416-D	FT-MW04-20110929
	FT-SB-412-0204	FT-MW-05I-20110314
	FT-SB-412-1214	FT-MW05I-20110929
	FT-SB-413-0810	FT-MW-05S-20110314
		FT-MW05S-20110929
		FT-MW-06I-20110314
		FT-MW06I-20110929
		FT-MW-06S-20110314
		FT-MW06S-20110929
		FT-MW-07S-20110315
		FT-MW07S-20110929
		FT-MW-08I-20110314
		FT-MW08I-20110929
		FT-MW-08S-20110314
		FT-MW08S-20110929

APPENDIX H.2

RAGS-PART D TABLES

RAGS Part D Table 1

Selection of Exposure Pathways

TABLE 1
SELECTION OF EXPOSURE PATHWAYS
SITE 2 - FIRE TRAINING AREA
NWIRP CALVERTON
CALVERTON, NEW YORK

Scenario Timeframe	Medium	Exposure Medium	Exposure Point	Receptor Population	Receptor Age	Exposure Route	Type of Analysis	Rationale for Selection or Exclusion of Exposure Pathway
Future	Surface Soil	Surface Soil	Site 2	Construction Workers	Adult	Ingestion Dermal	Quant Quant	Construction workers may have contact with surface soil during excavation activities.
				Industrial Worker	Adult	Ingestion Dermal	Quant Quant	Industrial workers may contact surface soil during normal work activities.
				Recreational Users	Child	Ingestion Dermal	Quant Quant	Recreational users may contact surface soil while at the site.
					Adult	Ingestion Dermal	Quant Quant	
				Residents	Child	Ingestion Dermal	Quant Quant	Although a future residential scenario is considered unlikely at the site this scenario is included to aid in future risk management decisions.
					Adult	Ingestion Dermal	Quant Quant	
		Air	Site 2	Construction Workers	Adult	Inhalation	Quant	Construction workers may be exposed to fugitive dust and volatile emissions during construction activities.
				Industrial Worker	Adult	Inhalation	Quant	Industrial workers may be exposed to fugitive dust and volatile emissions during work activities.
				Recreational Users	Child	Inhalation	Quant	Recreational users may be exposed to fugitive dust and volatile emissions while at the site.
					Adult	Inhalation	Quant	
				Residents	Child	Inhalation	Quant	Although a future residential scenario is considered unlikely at the site this scenario is included to aid in future risk management decisions.
					Adult	Inhalation	Quant	
	Subsurface Soil	Subsurface Soil	Site 2	Construction Workers	Adult	Ingestion Dermal	Quant Quant	Construction workers may have contact with subsurface soil during excavation activities.
				Industrial Worker	Adult	Ingestion Dermal	Quant Quant	Although exposures to subsurface soil by industrial workers is considered unlikely at the site this scenario is included to aid in future risk management decisions.
				Recreational Users	Child	Ingestion Dermal	Quant Quant	Although exposures to subsurface soil by recreational users is considered unlikely at the site this scenario is included to aid in future risk management decisions.
					Adult	Ingestion Dermal	Quant Quant	
				Residents	Child	Ingestion Dermal	Quant Quant	Although a future residential scenario is considered unlikely at the site this scenario is included to aid in future risk management decisions.
					Adult	Ingestion Dermal	Quant Quant	
		Air	Site 2	Construction Workers	Adult	Inhalation	Quant	Construction workers may have contact with subsurface soil during excavation activities.
				Industrial Worker	Adult	Inhalation	Quant	Although exposures to subsurface soil by industrial workers is considered unlikely at the site this scenario is included to aid in future risk management decisions.

TABLE 1
SELECTION OF EXPOSURE PATHWAYS
SITE 2 - FIRE TRAINING AREA
NWIRP CALVERTON
CALVERTON, NEW YORK

Scenario Timeframe	Medium	Exposure Medium	Exposure Point	Receptor Population	Receptor Age	Exposure Route	Type of Analysis	Rationale for Selection or Exclusion of Exposure Pathway
Future	Subsurface Soil	Air	Site 2	Recreational Users	Child	Inhalation	Quant	Although exposures to subsurface soil by recreational users is considered unlikely at the site this scenario is included to aid in future risk management decisions.
					Adult	Inhalation	Quant	
				Residents	Child	Inhalation	Quant	Although a future residential scenario is considered unlikely at the site this scenario is included to aid in future risk management decisions.
					Adult	Inhalation	Quant	
	Groundwater	Groundwater	Site 2	Construction Workers	Adult	Ingestion	Quant	Construction workers may have contact with groundwater during excavation activities.
						Dermal	Quant	
				Industrial Worker	Adult	Inhalation	None	Industrial workers are not expected to be exposed to groundwater.
				Recreational Users	Child	Ingestion	None	Recreational users are not expected to be exposed to groundwater.
						Dermal	None	
					Adult	Ingestion	None	
						Dermal	None	
				Residents	Child	Ingestion	Quant	Although a future residential scenario is considered unlikely at the site this scenario is included to aid in future risk management decisions.
						Dermal	Quant	
					Adult	Ingestion	Quant	
						Dermal	Quant	
		Air	Site 2	Construction Workers	Adult	Inhalation	Quant	Construction workers may be exposed to chemicals which have volatilized from groundwater.
				Industrial Worker	Adult	Inhalation	None	Industrial workers are not expected to be exposed to COPCs that have volatilized from groundwater.
				Recreational Users	Child	Inhalation	None	Recreational users are not expected to be exposed to groundwater.
					Adult	Inhalation	None	
				Residents	Child	Inhalation	Quant	Although a future residential scenario is considered unlikely at the site this scenario is included to aid in future risk management decisions.
					Adult	Inhalation	Quant	
			Vapor Intrusion	Residents	Child	Inhalation	Qual	Hypothetical residents could be exposed to COPCs that have volatilized from groundwater and migrated through building foundations and into indoor air.
					Adult	Inhalation	Qual	
				Industrial Worker	Adult	Inhalation	Qual	Future industrial workers could be exposed to COPCs that have volatilized from groundwater and migrated through building foundations and into indoor air.

Notes:
Qual - Qualitative.
Quant - Quantitative.

RAGS Part D Table 2

Occurrence, Distribution and Selection Of Chemicals of Potential Concern

LIST OF TABLES
RAGS PART D TABLE 2
OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN

Table No.

2.1	Surface Soil - Direct Contact
2.2	Surface Soil - Migration From Soil to Groundwater
2.3	Subsurface Soil - Direct Contact
2.4	Subsurface Soil - Migration From Soil to Groundwater
2.5	Groundwater - Direct Contact
2.6	Groundwater - Vapor Intrusion
2.7	Groundwater - Migration to Surface Water

TABLE 2.1
OCCURRENCE, DISTRIBUTION, AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN - DIRECT CONTACT WITH SURFACE SOIL
SITE 2 - FIRE TRAINING AREA
NWIRP CALVERTON
CALVERTON, NEW YORK

Scenario Timeframe: Current/Future
Medium: Surface Soil
Exposure Medium: Surface Soil

Exposure Point	CAS Number	Chemical	Minimum Concentration[1]	Maximum Concentration[1]	Units	Sample of Maximum Concentration	Frequency of Detection	Range of Nondetects[2]	Concentration Used for Screening[3]	Background Concentration[4]	Adjusted USEPA RSL Residential Soil[5]	NYSDEC Soil Cleanup Objectives[6] Residential	COPC Flag	Rationale for Contaminant Deletion or Selection[7]
Site 2	**Polycyclic Aromatic Hydrocarbons**													
	83-32-9	Acenaphthene	37 J	37 J	ug/kg	FT-SB-411-0002	1/2	1.8 - 1.8	37	NA	340,000 N	100,000	No	BSL
	208-96-8	Acenaphthylene	3.1 J	3.1 J	ug/kg	FT-SB-411-0002	1/2	1.8 - 1.8	3.1	NA	340,000 N[8]	100,000	No	BSL
	120-12-7	Anthracene	2.9 J	79	ug/kg	FT-SB-411-0002	2/2	-	79	NA	1,700,000 N	100,000	No	BSL
	56-55-3	Benzo(a)anthracene	460 J	460 J	ug/kg	FT-SB-411-0002	1/2	1.8 - 1.8	460	NA	150 C	1,000	Yes	ASL
	50-32-8	Benzo(a)pyrene	13	420	ug/kg	FT-SB-411-0002	2/2	-	420	NA	15 C	1,000	Yes	ASL
	205-99-2	Benzo(b)fluoranthene	18	580	ug/kg	FT-SB-411-0002	2/2	-	580	NA	150 C	1,000	Yes	ASL
	191-24-2	Benzo(g,h,i)perylene	10	290	ug/kg	FT-SB-411-0002	2/2	-	290	NA	170,000 N[9]	100,000	No	BSL
	207-08-9	Benzo(k)fluoranthene	6.5	190	ug/kg	FT-SB-411-0002	2/2	-	190	NA	1,500 C	1,000	No	BSL
	218-01-9	Chrysene	13	460	ug/kg	FT-SB-411-0002	2/2	-	460	NA	15,000 C	1,000	No	BSL
	53-70-3	Dibenzo(a,h)anthracene	2.9 J	79	ug/kg	FT-SB-411-0002	2/2	-	79	NA	15 C	330	Yes	ASL
	206-44-0	Fluoranthene	18	1000	ug/kg	FT-SB-411-0002	2/2	-	1,000	NA	230,000 N	100,000	No	BSL
	86-73-7	Fluorene	19 J	19 J	ug/kg	FT-SB-411-0002	1/2	1.8 - 1.8	19	NA	230,000 N	100,000	No	BSL
	193-39-5	Indeno(1,2,3-cd)pyrene	8.7	260	ug/kg	FT-SB-411-0002	2/2	-	260	NA	150 C	500	Yes	ASL
	91-20-3	Naphthalene	5.8	11	ug/kg	FT-SB-411-0002	2/2	-	11	NA	3,600 C	100,000	No	BSL
	85-01-8	Phenanthrene	12	550	ug/kg	FT-SB-411-0002	2/2	-	550	NA	170,000 N[9]	100,000	No	BSL
	129-00-0	Pyrene	21	840	ug/kg	FT-SB-411-0002	2/2	-	840	NA	170,000 N	100,000	No	BSL
	PCBs													
	11096-82-5	Aroclor-1248	22	22	ug/kg	FT-SB-413-0002	1/2	8.5 - 8.5	22	NA	220 C	1,000 [10]	No	BSL
	12672-29-6	Aroclor-1260	46	46	ug/kg	FT-SB-411-0002	1/2	9 - 9	46	NA	220 C	1,000 [10]	No	BSL
	Metals													
	7429-90-5	Aluminum	3810	3810	mg/kg	FT-SB-413-0002	1/1	-	3,810	18,500	7,700 N	NA	No	BSL, BKG
	7440-38-2	Arsenic	0.826 J	0.826 J	mg/kg	FT-SB-413-0002	1/1	-	0.826	14.5	0.39 C	16	No	BKG
	7440-39-3	Barium	7.63	7.63	mg/kg	FT-SB-413-0002	1/1	-	7.63	23.3	1,500 N	350	No	BSL, BKG
	7440-41-7	Beryllium	0.085 J	0.085 J	mg/kg	FT-SB-413-0002	1/1	-	0.085	NA	16 N	14	No	BSL
	7440-43-9	Cadmium	0.147 J	0.147 J	mg/kg	FT-SB-413-0002	1/1	-	0.147	2.8	7 N	2.5	No	BSL, BKG
	7440-70-2	Calcium	841	841	mg/kg	FT-SB-413-0002	1/1	-	841	236	NA	NA	No	NUT
	7440-47-3	Chromium	3.49	3.49	mg/kg	FT-SB-413-0002	1/1	-	3.49	64.2	NA	NA	No	BKG
	7440-48-4	Cobalt	0.642 J	0.642 J	mg/kg	FT-SB-413-0002	1/1	-	0.642	NA	2.3 N	NA	No	BSL
	7439-89-6	Iron	3110	3110	mg/kg	FT-SB-413-0002	1/1	-	3,110	17,100	5,500 N	NA	No	BSL, BKG
	7439-92-1	Lead	3.99	3.99	mg/kg	FT-SB-413-0002	1/1	-	3.99	37.5	400	400	No	BSL, BKG
	7439-95-4	Magnesium	125	125	mg/kg	FT-SB-413-0002	1/1	-	125	1,702	NA	NA	No	NUT, BKG
	7439-96-5	Manganese	17.2	17.2	mg/kg	FT-SB-413-0002	1/1	-	17.2	99.2	180 N	2,000	No	BSL, BKG
	7439-97-6	Mercury	0.021 J	0.021 J	mg/kg	FT-SB-413-0002	1/1	-	0.021	NA	2.3 N[11]	0.81 [12]	No	BSL
	7440-02-0	Nickel	1.74 J	1.74 J	mg/kg	FT-SB-413-0002	1/1	-	1.74	6.2	150 N	140	No	BSL, BKG
	7440-62-2	Vanadium	5.6	5.6	mg/kg	FT-SB-413-0002	1/1	-	5.6	51.3	39 N	NA	No	BSL, BKG
	7440-66-6	Zinc	10.9	10.9	mg/kg	FT-SB-413-0002	1/1	-	10.9	NA	2,300 N	2,200	No	BSL
	Miscellaneous Parameters													
	16065-83-1	Chromium III	3.49	3.49	mg/kg	FT-SB-413-0002	1/1	-	3.49	NA	12,000 N	36	No	BSL
	57-12-5	Cyanide	0.038 J	0.038 J	mg/kg	FT-SB-413-0002	1/1	-	0.038	NA	4.7 N	27	No	BSL

TABLE 2.1
OCCURRENCE, DISTRIBUTION, AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN - DIRECT CONTACT WITH SURFACE SOIL
SITE 2 - FIRE TRAINING AREA
NWIRP CALVERTON
CALVERTON, NEW YORK

Footnotes:
1 - Sample and duplicate are considered as two separate samples when determining the minimum and maximum concentrations.
2 - Values presented are sample-specific quantitation limits.
3 - The maximum detected concentration is used for screening purposes.
4 - Background concentration is the upper prediction limit, see Appendix G.
5 - USEPA Regional Screening Levels for Chemical Contaminants at Superfund Sites, May 2012. The noncarcinogenic values (denoted with a "N" flag) are the screening level divided by 10 to correspond to a target hazard quotient of 0.1. Carcinogenic values represent an incremental cancer risk of 1.0E-06 (carcinogens denoted with a "C" flag).
6 - New York State Department of Environmental Conservation (NYSDEC) Remedial Program Soil Cleanup Objectives. Table 375-6.8(b). December 2006.
7 - The chemical is selected as a COPC if the maximum detected concentration exceeds the risk-based COPC screening level and is statistically determined to be greater than site background.
8 - Value is for acenaphthene.
9 - Value is for pyrene.
10 - Value is for PCBs.
11 - Value is for mercuric chloride (and other mercury salts).
12 - Value is for total mercury.
Shaded criterion indicates that the maximum detected concentration exceeds one or more screening criteria. Shaded chemical name indicates that the chemical was retained as a COPC.

Associated Samples
FT-SB-411-0002
FT-SB-413-0002

Definitions:
C = Carcinogen
COPC = Chemical Of Potential Concern
J = Estimated value
N = Noncarcinogen
NA = Not Applicable/Not Available

Rationale Codes:
For selection as a COPC:
ASL = Above Screening Level and site background.

For elimination as a COPC:
BKG = Less than Background Concentration
BSL = Below COPC Screening Level
NUT = Essential nutrient

TABLE 2.2
OCCURRENCE, DISTRIBUTION, AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN - MIGRATION FROM SURFACE SOIL TO GROUNDWATER
SITE 2 - FIRE TRAINING AREA
NWIRP CALVERTON
CALVERTON, NEW YORK

Scenario Timeframe: Current/Future
Medium: Surface Soil
Exposure Medium: Surface Soil

Exposure Point	CAS Number	Chemical	Minimum Concentration[1]	Maximum Concentration[1]	Units	Sample of Maximum Concentration	Frequency of Detection	Range of Nondetects[2]	Concentration Used for Screening[3]	Background Concentration[4]	USEPA RSL Protection of Groundwater[5]	NYSDEC Soil Cleanup Objectives[6]	COPC Flag	Rationale for Contaminant Deletion or Selection[7]
Site 2	**Polycyclic Aromatic Hydrocarbons**													
	83-32-9	Acenaphthene	37 J	37 J	ug/kg	FT-SB-411-0002	1/2	1.8 - 1.8	37	NA	4,100	98,000	No	BSL
	208-96-8	Acenaphthylene	3.1 J	3.1 J	ug/kg	FT-SB-411-0002	1/2	1.8 - 1.8	3.1	NA	4,100 [8]	107,000	No	BSL
	120-12-7	Anthracene	2.9 J	79	ug/kg	FT-SB-411-0002	2/2	-	79	NA	42,000	1,000,000	No	BSL
	56-55-3	Benzo(a)anthracene	460 J	460 J	ug/kg	FT-SB-411-0002	1/2	1.8 - 1.8	460	NA	10	1,000	Yes	ASL
	50-32-8	Benzo(a)pyrene	13	420	ug/kg	FT-SB-411-0002	2/2	-	420	NA	3.5	22,000	Yes	ASL
	205-99-2	Benzo(b)fluoranthene	18	580	ug/kg	FT-SB-411-0002	2/2	-	580	NA	35	1,700	Yes	ASL
	191-24-2	Benzo(g,h,i)perylene	10	290	ug/kg	FT-SB-411-0002	2/2	-	290	NA	9,500 [9]	1,000,000	No	BSL
	207-08-9	Benzo(k)fluoranthene	6.5	190	ug/kg	FT-SB-411-0002	2/2	-	190	NA	350	1,700	No	BSL
	218-01-9	Chrysene	13	460	ug/kg	FT-SB-411-0002	2/2	-	460	NA	1,100	1,000	No	BSL
	53-70-3	Dibenzo(a,h)anthracene	2.9 J	79	ug/kg	FT-SB-411-0002	2/2	-	79	NA	11	1,000,000	Yes	ASL
	206-44-0	Fluoranthene	18	1000	ug/kg	FT-SB-411-0002	2/2	-	1,000	NA	70,000	1,000,000	No	BSL
	86-73-7	Fluorene	19 J	19 J	ug/kg	FT-SB-411-0002	1/2	1.8 - 1.8	19	NA	4,000	386,000	No	BSL
	193-39-5	Indeno(1,2,3-cd)pyrene	8.7	260	ug/kg	FT-SB-411-0002	2/2	-	260	NA	120	8,200	Yes	ASL
	91-20-3	Naphthalene	5.8	11	ug/kg	FT-SB-411-0002	2/2	-	11	NA	0.47	12,000	Yes	ASL
	85-01-8	Phenanthrene	12	550	ug/kg	FT-SB-411-0002	2/2	-	550	NA	9,500 [9]	1,000,000	No	BSL
	129-00-0	Pyrene	21	840	ug/kg	FT-SB-411-0002	2/2	-	840	NA	9,500	1,000,000	No	BSL
	PCBs													
	11096-82-5	Aroclor-1248	22	22	ug/kg	FT-SB-413-0002	1/2	8.5 - 8.5	22	NA	24	3,200 [10]	No	BSL
	12672-29-6	Aroclor-1260	46	46	ug/kg	FT-SB-411-0002	1/2	9 - 9	46	NA	5.2	3,200 [10]	Yes	ASL
	Metals													
	7429-90-5	Aluminum	3810	3810	mg/kg	FT-SB-413-0002	1/1	-	3,810	18,500	23,000	NA	No	BSL, BKG
	7440-38-2	Arsenic	0.826 J	0.826 J	mg/kg	FT-SB-413-0002	1/1	-	0.826	14.5	0.0013	16	No	BKG
	7440-39-3	Barium	7.63	7.63	mg/kg	FT-SB-413-0002	1/1	-	7.63	23.3	120	820	No	BSL, BKG
	7440-41-7	Beryllium	0.085 J	0.085 J	mg/kg	FT-SB-413-0002	1/1	-	0.085	NA	13	47	No	BSL
	7440-43-9	Cadmium	0.147 J	0.147 J	mg/kg	FT-SB-413-0002	1/1	-	0.147	2.8	0.52	7.5	No	BSL, BKG
	7440-70-2	Calcium	841	841	mg/kg	FT-SB-413-0002	1/1	-	841	236	NA	NA	No	NUT
	7440-47-3	Chromium	3.49	3.49	mg/kg	FT-SB-413-0002	1/1	-	3.49	64.2	NA	NA	No	BKG
	7440-48-4	Cobalt	0.642 J	0.642 J	mg/kg	FT-SB-413-0002	1/1	-	0.642	NA	0.21	NA	Yes	ASL
	7439-89-6	Iron	3110	3110	mg/kg	FT-SB-413-0002	1/1	-	3,110	17,100	270	NA	No	BKG
	7439-92-1	Lead	3.99	3.99	mg/kg	FT-SB-413-0002	1/1	-	3.99	37.5	14 [11]	450	No	BSL, BKG
	7439-95-4	Magnesium	125	125	mg/kg	FT-SB-413-0002	1/1	-	125	1,702	NA	NA	No	NUT, BKG
	7439-96-5	Manganese	17.2	17.2	mg/kg	FT-SB-413-0002	1/1	-	17.2	99.2	21	2,000	No	BSL, BKG
	7439-97-6	Mercury	0.021 J	0.021 J	mg/kg	FT-SB-413-0002	1/1	-	0.021	NA	0.033	0.73 [12]	No	BSL
	7440-02-0	Nickel	1.74 J	1.74 J	mg/kg	FT-SB-413-0002	1/1	-	1.74	6.2	20	130	No	BSL, BKG
	7440-62-2	Vanadium	5.6	5.6	mg/kg	FT-SB-413-0002	1/1	-	5.6	51.3	78	NA	No	BSL, BKG
	7440-66-6	Zinc	10.9	10.9	mg/kg	FT-SB-413-0002	1/1	-	10.9	NA	290	2,480	No	BSL
	Miscellaneous Parameters													
	16065-83-1	Chromium III	3.49	3.49	mg/kg	FT-SB-413-0002	1/1	-	3.49	NA	28,000,000	NA	No	BSL
	57-12-5	Cyanide	0.038 J	0.038 J	mg/kg	FT-SB-413-0002	1/1	-	0.038	NA	0.094	40	No	BSL

TABLE 2.2
OCCURRENCE, DISTRIBUTION, AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN - MIGRATION FROM SURFACE SOIL TO GROUNDWATER
SITE 2 - FIRE TRAINING AREA
NWIRP CALVERTON
CALVERTON, NEW YORK

Footnotes:
1 - Sample and duplicate are considered as two separate samples when determining the minimum and maximum concentrations.
2 - Values presented are sample-specific quantitation limits.
3 - The maximum detected concentration is used for screening purposes.
4 - Background concentration is the upper prediction limit, see Appendix G.
5 - USEPA Regional Screening Level (RSL), May 2012. Protection of groundwater values are risk-based soil screening levels (SSLs) and represent a dilution attenuation factor of 1.
6 - New York State Department of Environmental Conservation (NYSDEC) Remedial Program Soil Cleanup Objectives. Table 375-6.8(b). December 2006.
7 - The chemical is selected as a COPC if the maximum detected concentration exceeds the risk-based COPC screening level and is statistically determined to be greater than site background.
8 - Value is for acenaphthene.
9 - Value is for pyrene.
10 - Value is for PCBs.
11 - Value is MCL based SSL.
12 - Value is for total mercury.
Shaded criterion indicates that the maximum detected concentration exceeds one or more screening criteria. Shaded chemical name indicates that the chemical was retained as a COPC.

Associated Samples
FT-SB-411-0002
FT-SB-413-0002

Definitions:
COPC = Chemical Of Potential Concern
J = Estimated value
NA = Not Applicable/Not Available

Rationale Codes:
For selection as a COPC:
ASL = Above Screening Level and site background.

For elimination as a COPC:
BKG = Less than Background Concentration
BSL = Below COPC Screening Level
NUT = Essential nutrient

TABLE 2.3
OCCURRENCE, DISTRIBUTION, AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN - DIRECT CONTACT WITH SUBSURFACE SOIL
SITE 2 - FIRE TRAINING AREA
NWIRP CALVERTON
CALVERTON, NEW YORK

Scenario Timeframe: Current/Future
Medium: Subsurface Soil
Exposure Medium: Subsurface Soil

Exposure Point	CAS Number	Chemical	Minimum Concentration[1]	Maximum Concentration[1]	Units	Sample of Maximum Concentration	Frequency of Detection	Range of Nondetects[2]	Concentration Used for Screening[3]	Background Concentration[4]	Adjusted USEPA RSL Residential Soil[5]	NYSDEC Soil Cleanup Objectives[6] Residential	COPC Flag	Rationale for Contaminant Deletion or Selection[7]
Site 2	**Volatile Organic Compounds**													
	--	m+p-Xylenes	1300 J	1300 J	ug/kg	FT-SB-408-1517	1/14	5 - 6000	1300	NA	59,000 N[8]	100,000 [9]	No	BSL
	75-09-2	Methylene Chloride	2.4 J	2.4 J	ug/kg	FT-SB-410-1416	1/14	2.55 - 2950	2.4	NA	36,000 N[10]	51,000	No	BSL
	95-47-6	o-Xylene	1200 J	1200 J	ug/kg	FT-SB-408-1517	1/14	2.55 - 2950	1200	NA	69,000 N	100,000 [9]	No	BSL
	Polycyclic Aromatic Hydrocarbons													
	120-12-7	Anthracene	28	40	ug/kg	FT-SB-408-1517	2/11	1.7 - 1.9	40	NA	1,700,000 N	100,000	No	BSL
	56-55-3	Benzo(a)anthracene	130 J	310 J	ug/kg	FT-SB-409-1315	2/11	1.7 - 1.9	310	NA	150 C	1,000	Yes	ASL
	50-32-8	Benzo(a)pyrene	110	140	ug/kg	FT-SB-409-1315	2/11	1.7 - 1.9	140	NA	15 C	1,000	Yes	ASL
	205-99-2	Benzo(b)fluoranthene	1.4 J	360	ug/kg	FT-SB-409-1315	3/11	1.7 - 1.9	360	NA	150 C	1,000	Yes	ASL
	191-24-2	Benzo(g,h,i)perylene	88	150	ug/kg	FT-SB-409-1315	2/11	1.7 - 1.9	150	NA	170,000 N[11]	100,000	No	BSL
	207-08-9	Benzo(k)fluoranthene	56	130	ug/kg	FT-SB-409-1315	2/11	1.7 - 1.9	130	NA	1,500 C	1,000	No	BSL
	218-01-9	Chrysene	160	350	ug/kg	FT-SB-409-1315	2/11	1.7 - 1.9	350	NA	15,000 C	1,000	No	BSL
	53-70-3	Dibenzo(a,h)anthracene	22	45	ug/kg	FT-SB-409-1315	2/11	1.7 - 1.9	45	NA	15 C	330	Yes	ASL
	206-44-0	Fluoranthene	390	870	ug/kg	FT-SB-409-1315	2/11	1.7 - 1.9	870	NA	230,000 N	100,000	No	BSL
	86-73-7	Fluorene	300 J	590 J	ug/kg	FT-SB-408-1517	2/11	1.7 - 1.9	590	NA	230,000 N	100,000	No	BSL
	193-39-5	Indeno(1,2,3-cd)pyrene	76	130	ug/kg	FT-SB-409-1315	2/11	1.7 - 1.9	130	NA	150 C	500	No	BSL
	85-01-8	Phenanthrene	550	920	ug/kg	FT-SB-408-1517	2/11	1.7 - 1.9	920	NA	170,000 N[11]	100,000	No	BSL
	129-00-0	Pyrene	350	740	ug/kg	FT-SB-409-1315	2/11	1.7 - 1.9	740	NA	170,000 N	100,000	No	BSL
	Metals													
	7429-90-5	Aluminum	511	5820	mg/kg	FT-SB-407-0608	5/5	-	5,820	18,500	7,700 N	NA	No	BSL, BKG
	7440-38-2	Arsenic	0.383 J	1.58	mg/kg	FT-SB-407-0608	4/5	0.38 - 0.38	1.58	14.5	0.39 C	16	No	BKG, BKG
	7440-39-3	Barium	1.39 J	10.8	mg/kg	FT-SB-401-0608	5/5	-	10.8	23.3	1,500 N	350	No	BSL, BKG
	7440-41-7	Beryllium	0.107 J	0.125 J	mg/kg	FT-SB-407-0608	2/5	0.115 - 0.14	0.125	NA	16 N	14	No	BSL
	7440-43-9	Cadmium	0.051 J	0.201 J	mg/kg	FT-SB-401-0608	4/5	0.14 - 0.14	0.201	2.8	7 N	2.5	No	BSL, BKG
	7440-70-2	Calcium	33.8 J	80.3 J	mg/kg	FT-SB-403-0608-D	5/5	-	80.3	236	NA	NA	No	NUT, BKG
	7440-47-3	Chromium	1.06	5.87	mg/kg	FT-SB-407-0608	5/5	-	5.87	64.2	NA	NA	No	BKG
	7440-48-4	Cobalt	0.457 J	1.24 J	mg/kg	FT-SB-401-0608	3/5	0.585 - 0.695	1.24	NA	2.3 N	NA	No	BSL, BKG
	7439-89-6	Iron	814	4420	mg/kg	FT-SB-407-0608	5/5	-	4,420	17,100	5,500 N	NA	No	BSL, BKG
	7439-92-1	Lead	2.66	3.27	mg/kg	FT-SB-407-0608	2/5	0.809 - 1.09	3.27	37.5	400	400	No	BSL, BKG
	7439-95-4	Magnesium	69.7 J	501	mg/kg	FT-SB-401-0608	5/5	-	501	1,702	NA	NA	No	NUT
	7439-96-5	Manganese	5.28	34.7	mg/kg	FT-SB-401-0608	5/5	-	34.7	99.2	180 N	2,000	No	BSL, BKG
	7439-97-6	Mercury	0.006 J	0.013 J	mg/kg	FT-SB-407-0608	2/5	0.005 - 0.005	0.013	NA	2.3 N[12]	0.81 [13]	No	BSL
	7440-02-0	Nickel	0.424 J	2.18	mg/kg	FT-SB-401-0608	5/5	-	2.18	6.2	150 N	140	No	BSL, BKG
	7440-09-7	Potassium	31.3 J	82.8 J	mg/kg	FT-SB-401-0608	2/5	38.15 - 46.4	82.8	355	NA	NA	No	NUT, BKG
	7782-49-2	Selenium	0.55 J	0.55 J	mg/kg	FT-SB-401-0608	1/5	0.38 - 0.54	0.55	NA	39 N	36	No	BSL, BKG
	7440-62-2	Vanadium	1.38 J	9.26	mg/kg	FT-SB-407-0608	5/5	-	9.26	51.3	39 N	NA	No	BSL, BKG
	7440-66-6	Zinc	4.03	10.5	mg/kg	FT-SB-401-0608	5/5	-	10.5	NA	2,300 N	2,200	No	BSL, BKG
	Miscellaneous Parameters													
	16065-83-1	Chromium III	1.06	5.78	mg/kg	FT-SB-407-0608	5/5	-	5.78	NA	12,000 N	36	No	BSL
	18540-29-9	Hexavalent Chromium	0.09 J	0.09 J	mg/kg	FT-SB-407-0608	1/5	0.205 - 0.215	0.09	NA	0.29 C	22	No	BSL

TABLE 2.3
OCCURRENCE, DISTRIBUTION, AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN - DIRECT CONTACT WITH SUBSURFACE SOIL
SITE 2 - FIRE TRAINING AREA
NWIRP CALVERTON
CALVERTON, NEW YORK

Footnotes:
1 - Sample and duplicate are considered as two separate samples when determining the minimum and maximum concentrations.
2 - Values presented are sample-specific quantitation limits.
3 - The maximum detected concentration is used for screening purposes.
4 - Background concentration is the upper prediction limit, see Appendix G.
5 - USEPA Regional Screening Levels for Chemical Contaminants at Superfund Sites, May 2012. The noncarcinogenic values (denoted with a "N" flag) are the screening level divided by 10 to correspond to a target hazard quotient of 0.1. Carcinogenic values represent an incremental cancer risk of 1.0E-06 (carcinogens denoted with a "C" flag).
6 - New York State Department of Environmental Conservation (NYSDEC) Remedial Program Soil Cleanup Objectives. Table 375-6.8(b). December 2006.
7 - The chemical is selected as a COPC if the maximum detected concentration exceeds the risk-based COPC screening level and is statistically determined to be greater than site background.
8 - Value is for m-xylene.
9 - Value is for mixed xylenes.
10 - Ten percent of the noncarcinogenic value is less than the carcinogenic value; therefore the noncarcinogenic value is presented.
11 - Value is for pyrene.
12 - Value is for mercuric chloride (and other mercury salts).
13 - Value is for total mercury.
Shaded criterion indicates that the maximum detected concentration exceeds one or more screening criteria. Shaded chemical name indicates that the chemical was retained as a COPC.

Associated Samples
FT-SB-401-0608
FT-SB-402-0608
FT-SB-403-0608
FT-SB-403-0608-D
FT-SB-404-0305
FT-SB-404-0608
FT-SB-405-0204
FT-SB-405-0608
FT-SB-406-0406
FT-SB-407-0608
FT-SB-408-1517
FT-SB-409-1315
FT-SB-410-1416
FT-SB-410-1416-D
FT-SB-412-0204
FT-SB-412-1214
FT-SB-413-0810

Definitions:
C = Carcinogen
COPC = Chemical Of Potential Concern
J = Estimated value
N = Noncarcinogen
NA = Not Applicable/Not Available

Rationale Codes:
For selection as a COPC:
ASL = Above Screening Level and site background.

For elimination as a COPC:
BKG = Less than Background Concentration
BSL = Below COPC Screening Level
NUT = Essential nutrient

TABLE 2.4
OCCURRENCE, DISTRIBUTION, AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN - MIGRATION FROM SUBSURFACE SOIL TO GROUNDWATER
SITE 2 - FIRE TRAINING AREA
NWIRP CALVERTON
CALVERTON, NEW YORK

Scenario Timeframe: Current/Future
Medium: Subsurface Soil
Exposure Medium: Subsurface Soil

Exposure Point	CAS Number	Chemical	Minimum Concentration[1]	Maximum Concentration[1]	Units	Sample of Maximum Concentration	Frequency of Detection	Range of Nondetects[2]	Concentration Used for Screening[3]	Background Concentration[4]	USEPA RSL Protection of Groundwater[5]	NYSDEC Soil Cleanup Objectives[6]	COPC Flag	Rationale for Contaminant Deletion or Selection[7]
Site 2	**Volatile Organic Compounds**													
	--	m+p-Xylenes	1300 J	1300 J	ug/kg	FT-SB-408-1517	1/14	5 - 6000	1,300	NA	180 [8]	1,600 [9]	Yes	ASL
	75-09-2	Methylene Chloride	2.4 J	2.4 J	ug/kg	FT-SB-410-1416	1/14	2.55 - 2950	2.4	NA	2.5	50	No	BSL
	95-47-6	o-Xylene	1200 J	1200 J	ug/kg	FT-SB-408-1517	1/14	2.55 - 2950	1,200	NA	190	1,600 [9]	Yes	ASL
	Polycyclic Aromatic Hydrocarbons													
	120-12-7	Anthracene	28	40	ug/kg	FT-SB-408-1517	2/11	1.7 - 1.9	40	NA	42,000	1,000,000	No	BSL
	56-55-3	Benzo(a)anthracene	130 J	310 J	ug/kg	FT-SB-409-1315	2/11	1.7 - 1.9	310	NA	10	1,000	Yes	ASL
	50-32-8	Benzo(a)pyrene	110	140	ug/kg	FT-SB-409-1315	2/11	1.7 - 1.9	140	NA	3.5	22,000	Yes	ASL
	205-99-2	Benzo(b)fluoranthene	1.4 J	360	ug/kg	FT-SB-409-1315	3/11	1.7 - 1.9	360	NA	35	1,700	Yes	ASL
	191-24-2	Benzo(g,h,i)perylene	88	150	ug/kg	FT-SB-409-1315	2/11	1.7 - 1.9	150	NA	9,500 [10]	1,000,000	No	BSL
	207-08-9	Benzo(k)fluoranthene	56	130	ug/kg	FT-SB-409-1315	2/11	1.7 - 1.9	130	NA	350	1,700	No	BSL
	218-01-9	Chrysene	160	350	ug/kg	FT-SB-409-1315	2/11	1.7 - 1.9	350	NA	1,100	1,000	No	BSL
	53-70-3	Dibenzo(a,h)anthracene	22	45	ug/kg	FT-SB-409-1315	2/11	1.7 - 1.9	45	NA	11	1,000,000	Yes	ASL
	206-44-0	Fluoranthene	390	870	ug/kg	FT-SB-409-1315	2/11	1.7 - 1.9	870	NA	70,000	1,000,000	No	BSL
	86-73-7	Fluorene	300 J	590 J	ug/kg	FT-SB-408-1517	2/11	1.7 - 1.9	590	NA	4,000	386,000	No	BSL
	193-39-5	Indeno(1,2,3-cd)pyrene	76	130	ug/kg	FT-SB-409-1315	2/11	1.7 - 1.9	130	NA	120	8,200	Yes	ASL
	85-01-8	Phenanthrene	550	920	ug/kg	FT-SB-408-1517	2/11	1.7 - 1.9	920	NA	9,500 [10]	1,000,000	No	BSL
	129-00-0	Pyrene	350	740	ug/kg	FT-SB-409-1315	2/11	1.7 - 1.9	740	NA	9,500	1,000,000	No	BSL
	Metals													
	7429-90-5	Aluminum	511	5820	mg/kg	FT-SB-407-0608	5/5	-	5,820	18,500	23,000	NA	No	BSL, BKG
	7440-38-2	Arsenic	0.383 J	1.58	mg/kg	FT-SB-407-0608	4/5	0.38 - 0.38	1.58	14.5	0.0013	16	No	BKG
	7440-39-3	Barium	1.39 J	10.8	mg/kg	FT-SB-401-0608	5/5	-	10.8	23.3	120	820	No	BSL, BKG
	7440-41-7	Beryllium	0.107 J	0.125 J	mg/kg	FT-SB-407-0608	2/5	0.115 - 0.14	0.125	NA	13	47	No	BSL, BKG
	7440-43-9	Cadmium	0.051 J	0.201 J	mg/kg	FT-SB-401-0608	4/5	0.14 - 0.14	0.201	2.8	0.52	7.5	No	BSL, BKG
	7440-70-2	Calcium	33.8 J	80.3 J	mg/kg	FT-SB-403-0608-D	5/5	-	80.3	236	NA	NA	No	NUT, BKG
	7440-47-3	Chromium	1.06	5.87	mg/kg	FT-SB-407-0608	5/5	-	5.87	64.2	NA	NA	No	BKG
	7440-48-4	Cobalt	0.457 J	1.24 J	mg/kg	FT-SB-401-0608	3/5	0.585 - 0.695	1.24	NA	0.21	NA	Yes	ASL
	7439-89-6	Iron	814	4420	mg/kg	FT-SB-407-0608	5/5	-	4,420	17,100	270	NA	No	BKG
	7439-92-1	Lead	2.66	3.27	mg/kg	FT-SB-407-0608	2/5	0.809 - 1.09	3.27	37.5	14 [11]	450	No	BSL
	7439-95-4	Magnesium	69.7 J	501	mg/kg	FT-SB-401-0608	5/5	-	501	1,702	NA	NA	No	NUT, BKG
	7439-96-5	Manganese	5.28	34.7	mg/kg	FT-SB-401-0608	5/5	-	34.7	99.2	21	2,000	No	BKG
	7439-97-6	Mercury	0.006 J	0.013 J	mg/kg	FT-SB-407-0608	2/5	0.005 - 0.005	0.013	NA	0.033	0.73 [12]	No	BSL, BKG
	7440-02-0	Nickel	0.424 J	2.18	mg/kg	FT-SB-401-0608	5/5	-	2.18	6.2	20	130	No	BSL, BKG
	7440-09-7	Potassium	31.3 J	82.8 J	mg/kg	FT-SB-401-0608	2/5	38.15 - 46.4	82.8	355	NA	NA	No	NUT
	7782-49-2	Selenium	0.55 J	0.55 J	mg/kg	FT-SB-401-0608	1/5	0.38 - 0.54	0.55	NA	0.4	4	Yes	ASL
	7440-62-2	Vanadium	1.38 J	9.26	mg/kg	FT-SB-407-0608	5/5	-	9.26	51.3	78	NA	No	BSL, BKG
	7440-66-6	Zinc	4.03	10.5	mg/kg	FT-SB-401-0608	5/5	-	10.5	NA	290	2,480	No	BSL, BKG
	Miscellaneous Parameters													
	16065-83-1	Chromium III	1.06	5.78	mg/kg	FT-SB-407-0608	5/5	-	5.78	NA	28,000,000	NA	No	BSL, BKG
	18540-29-9	Hexavalent Chromium	0.09 J	0.09 J	mg/kg	FT-SB-407-0608	1/5	0.205 - 0.215	0.09	NA	0.00059	19	Yes	ASL

TABLE 2.4
OCCURRENCE, DISTRIBUTION, AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN - MIGRATION FROM SUBSURFACE SOIL TO GROUNDWATER
SITE 2 - FIRE TRAINING AREA
NWIRP CALVERTON
CALVERTON, NEW YORK

Footnotes:
1 - Sample and duplicate are considered as two separate samples when determining the minimum and maximum concentrations.
2 - Values presented are sample-specific quantitation limits.
3 - The maximum detected concentration is used for screening purposes.
4 - Background concentration is the upper prediction limit, see Appendix G.
5 - USEPA Regional Screening Level (RSL), May 2012. Protection of groundwater values are risk-based soil screening levels (SSLs) and represent a dilution attenuation factor of 1.
6 - New York State Department of Environmental Conservation (NYSDEC) Remedial Program Soil Cleanup Objectives. Table 375-6.8(b). December 2006.
7 - The chemical is selected as a COPC if the maximum detected concentration exceeds the risk-based COPC screening level and is statistically determined to be greater than site background.
8 - Value is for m-xylene.
9 - Value is for mixed xylenes.
10 - Value is for pyrene.
11 - Value is MCL based soil screening level.
12 - Value is for total mercury.
Shaded criterion indicates that the maximum detected concentration exceeds one or more screening criteria. Shaded chemical name indicates that the chemical was retained as a COPC.

Associated Samples
FT-SB-401-0608
FT-SB-402-0608
FT-SB-403-0608
FT-SB-403-0608-D
FT-SB-404-0305
FT-SB-404-0608
FT-SB-405-0204
FT-SB-405-0608
FT-SB-406-0406
FT-SB-407-0608
FT-SB-408-1517
FT-SB-409-1315
FT-SB-410-1416
FT-SB-410-1416-D
FT-SB-412-0204
FT-SB-412-1214
FT-SB-413-0810

Definitions:
COPC = Chemical Of Potential Concern
J = Estimated value
NA = Not Applicable/Not Available

Rationale Codes:
For selection as a COPC:
ASL = Above Screening Level and site background.

For elimination as a COPC:
BKG = Less than Background Concentration
BSL = Below COPC Screening Level
NUT = Essential nutrient

TABLE 2.5
OCCURRENCE, DISTRIBUTION, AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN - DIRECT CONTACT WITH GROUNDWATER
SITE 2 - FIRE TRAINING AREA
NWIRP CALVERTON
CALVERTON, NEW YORK

Scenario Timeframe: Current/Future
Medium: Groundwater
Exposure Medium: Groundwater

Exposure Point	CAS Number	Chemical	Minimum Concentration[1]	Maximum Concentration[1]	Units	Sample of Maximum Concentration	Frequency of Detection	Range of Nondetects[2]	Concentration Used for Screening[3]	Range of Background Concentrations[4]	Adjusted USEPA RSL Tapwater[5]	USEPA MCL[6]	NYSDOH MCL[7]	COPC Flag	Rationale for Contaminant Deletion or Selection[8]
Site 2	**Volatile Organic Compounds**														
	75-34-3	1,1-Dichloroethane	0.81 J	1.3	ug/L	FT-MW02S-20110929-D	3/26	0.5 - 0.5	1.3	NA	2.4 C	NA	5	No	BSL
	95-50-1	1,2-Dichlorobenzene	0.58 J	3.9	ug/L	FT-MW02S-20110929	2/23	0.5 - 0.5	3.9	NA	28 N	600	5	No	BSL
	106-46-7	1,4-Dichlorobenzene	1.2	1.3	ug/L	FT-MW02S-20110929	1/23	0.5 - 0.5	1.3	NA	0.42 C	75	5	Yes	ASL
	78-93-3	2-Butanone	6 J	26 J	ug/L	FT-MW-02S-20110315	2/26	2.5 - 2.5	26	NA	490 N	NA	50	No	BSL
	67-64-1	Acetone	9.5 J	27 J	ug/L	FT-MW-02S-20110315	2/26	2.5 - 2.5	27	NA	1200 N	NA	50	No	BSL
	67-66-3	Chloroform	0.5 J	0.79 J	ug/L	FT-MW05I-20110929	4/23	0.5 - 0.5	0.79	NA	0.19 C	80	50	Yes	ASL
	156-59-2	cis-1,2-Dichloroethene	0.54 J	4.1 J	ug/L	FT-MW-02S-20110315	3/26	0.5 - 0.5	4.1	NA	2.8 N	70	5	Yes	ASL
	100-41-4	Ethylbenzene	4.7	4.8	ug/L	FT-MW-02S-20110315-D	1/26	0.5 - 0.5	4.8	NA	1.3 C	700	5	Yes	ASL
	98-82-8	Isopropylbenzene	0.8 J	0.89 J	ug/L	FT-MW-02S-20110315	1/23	0.5 - 0.5	0.89	NA	39 N	NA	50	No	BSL
	--	m+p-Xylenes	7.6	7.8	ug/L	FT-MW-02S-20110315	1/26	1 - 1	7.8	NA	19 N[9]	10,000 [10]	5	Yes	ASL
	95-47-6	o-Xylene	2.8	16	ug/L	FT-MW-02S-20110315 FT-MW-02S-20110315-D	2/26	0.5 - 0.5	16	NA	19 N	10,000 [10]	5	Yes	ASL
	127-18-4	Tetrachloroethene	0.91 J	0.91 J	ug/L	FT-MW-02S-20110315-D	1/26	0.5 - 0.5	0.91	NA	3.5 N[11]	5	5	No	BSL
	108-88-3	Toluene	4.4	4.5	ug/L	FT-MW-02S-20110315	1/26	0.5 - 0.5	4.5	NA	86 N	1000	5	No	BSL
	79-01-6	Trichloroethene	0.74 J	12	ug/L	FT-MW-02S-20110315-D	3/26	0.5 - 0.5	12	NA	0.26 N[11]	5	5	Yes	ASL
	75-01-4	Vinyl Chloride	1.4	1.8	ug/L	FT-MW02S-20110929	1/26	0.5 - 0.5	1.8	NA	0.015 C	2	2	Yes	ASL
	Volatile Gases														
	74-82-8	Methane	208	470.6	ug/L	FT-MW-02S-20110315	2/6	2.5 - 2.5	470.6	NA	NA	NA	NA	No	NTX

Footnotes:
1 - Sample and duplicate are considered as two separate samples when determining the minimum and maximum concentrations.
2 - Values presented are sample-specific quantitation limits.
3 - The maximum detected concentration is used for screening purposes.
4 - No background data is available for groundwater.
5 - USEPA Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites, May 2012. RSLs for carcinogens correspond to an integrated lifetime cancer risk (ILCR) of 1E-06; adjusted RSLs for noncarcinogens correspond to a hazard quotient (HQ) of 0.1.
6 - 2011 Edition of the Drinking Water Standards and Health Advisories (USEPA, January 2011).
7 - New York State Department of Health (NYSDOH) Part 5, Subpart 5-1 Public Water Systems, Table 3 Organic Chemicals - Maximum Contaminant Level (MCL) Determination, March 2010.
8 - The chemical is selected as a COPC if the maximum detected concentration exceeds the risk-based COPC screening level.
9 - Value is for m-xylene.
10 - Value is for total xylenes.
11 - Ten percent of the noncarcinogenic value is less than the carcinogenic value; therefore the noncarcinogenic value is presented.
Shaded criterion indicates that the maximum detected concentration exceeds one or more screening criteria. Shaded chemical name indicates that the chemical was retained as a COPC.

Definitions:
C = Carcinogen
COPC = Chemical Of Potential Concern
J = Estimated value
N = Noncarcinogen
NA = Not Applicable/Not Available

Rationale Codes:
For selection as a COPC:
ASL = Above Screening Level and site background.

For elimination as a COPC:
BSL = Below COPC Screening Level
NUT = Essential nutrient
NTX = No toxicity criteria

Associated Samples

FT-MW-01I-20110314	FT-MW-05I-20110314
FT-MW01I-20111018	FT-MW05I-20110929
FT-MW-01S-20110314	FT-MW-05S-20110314
FT-MW01S-20111018	FT-MW05S-20110929
FT-MW-02I-20110315	FT-MW-06I-20110314
FT-MW02I-20110929	FT-MW06I-20110929
FT-MW-02S-20110315	FT-MW-06S-20110314
FT-MW-02S-20110315-D	FT-MW06S-20110929
FT-MW02S-20110929	FT-MW-07S-20110315
FT-MW02S-20110929-D	FT-MW07S-20110929
FT-MW-03-20110314	FT-MW-08I-20110314
FT-MW03S-20111018	FT-MW08I-20110929
FT-MW-04-20110314	FT-MW-08S-20110314
FT-MW04-20110929	FT-MW08S-20110929

TABLE 2.6
OCCURRENCE, DISTRIBUTION, AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN - VAPOR INTRUSION
SITE 2 - FIRE TRAINING AREA
NWIRP CALVERTON
CALVERTON, NEW YORK

Scenario Timeframe: Current/Future
Medium: Groundwater
Exposure Medium: Groundwater

Exposure Point	CAS Number	Chemical	Minimum Concentration[1]	Maximum Concentration[1]	Units	Sample of Maximum Concentration	Frequency of Detection	Range of Nondetects[2]	Concentration Used for Screening[3]	Range of Background Concentrations[4]	USEPA Groundwater Volatilization Criterion[5]	Potential ARAR/TBC	Potential ARAR/TBC Source[6]	COPC Flag	Rationale for Contaminant Deletion or Selection[7]
Site 2	Volatile Organic Compounds														
	75-34-3	1,1-Dichloroethane	0.81 J	1.3	ug/L	FT-MW02S-20110929-D	3/26	0.5 - 0.5	1.3	NA	6.6 C	5	NYSDOH MCL	No	BSL
	95-50-1	1,2-Dichlorobenzene	0.58 J	3.9	ug/L	FT-MW02S-20110929	2/23	0.5 - 0.5	3.9	NA	NVT	5	NYSDOH MCL	No	NVT
	106-46-7	1,4-Dichlorobenzene	1.2	1.3	ug/L	FT-MW02S-20110929	1/23	0.5 - 0.5	1.3	NA	2.2 C	5	NYSDOH MCL	No	BSL
	78-93-3	2-Butanone	6 J	26 J	ug/L	FT-MW-02S-20110315	2/26	2.5 - 2.5	26	NA	NVT	50	NYSDOH MCL	No	NVT
	67-64-1	Acetone	9.5 J	27 J	ug/L	FT-MW-02S-20110315	2/26	2.5 - 2.5	27	NA	NVT	50	NYSDOH MCL	No	NVT
	67-66-3	Chloroform	0.5 J	0.79 J	ug/L	FT-MW05I-20110929	4/23	0.5 - 0.5	0.79	NA	0.71 C	50	NYSDOH MCL	Yes	ASL
	156-59-2	cis-1,2-Dichloroethene	0.54 J	4.1 J	ug/L	FT-MW-02S-20110315	3/26	0.5 - 0.5	4.1	NA	NA	5	NYSDOH MCL	No	NTX
	100-41-4	Ethylbenzene	4.7	4.8	ug/L	FT-MW-02S-20110315-D	1/26	0.5 - 0.5	4.8	NA	3 C	5	NYSDOH MCL	Yes	ASL
	98-82-8	Isopropylbenzene	0.8 J	0.89 J	ug/L	FT-MW-02S-20110315	1/23	0.5 - 0.5	0.89	NA	NVT	50	NYSDOH MCL	No	NVT
	--	m+p-Xylenes	7.6	7.8	ug/L	FT-MW-02S-20110315	1/26	1 - 1	7.8	NA	36 N[8]	5	NYSDOH MCL	No	BSL
	95-47-6	o-Xylene	2.8	16	ug/L	FT-MW-02S-20110315, FT-MW-02S-20110315-D	2/26	0.5 - 0.5	16	NA	49 N	5	NYSDOH MCL	No	BSL
	127-18-4	Tetrachloroethene	0.91 J	0.91 J	ug/L	FT-MW-02S-20110315-D	1/26	0.5 - 0.5	0.91	NA	0.57 C	5	NYSDOH MCL	Yes	ASL
	108-88-3	Toluene	4.4	4.5	ug/L	FT-MW-02S-20110315	1/26	0.5 - 0.5	4.5	NA	NVT	5	NYSDOH MCL	No	NVT
	79-01-6	Trichloroethene	0.74 J	12	ug/L	FT-MW-02S-20110315-D	3/26	0.5 - 0.5	12	NA	0.52 N	5	NYSDOH MCL	Yes	ASL
	75-01-4	Vinyl Chloride	1.4	1.8	ug/L	FT-MW02S-20110929	1/26	0.5 - 0.5	1.8	NA	0.14 C	2	NYSDOH MCL	Yes	ASL
	Volatile Gases														
	74-82-8	Methane	208	470.6	ug/L	FT-MW-02S-20110315	2/6	2.5 - 2.5	470.6	NA	NA	NA	NA	No	NTX

Footnotes:
1 - Sample and duplicate are considered as two separate samples when determining the minimum and maximum concentrations.
2 - Values presented are sample-specific quantitation limits.
3 - The maximum detected concentration is used for screening purposes.
4 - No background data is available for groundwater.
5 - USEPA's Vapor Intrusion Screening Level (VISL) calculator (USEPA, March 2012). Values correspond to a target cancer risk level of 1E-06 or HQ = 0.1 and an attenuation factor of 0.001.
6 - New York State Department of Health (NYSDOH) Part 5, Subpart 5-1 Public Water Systems, Table 3 Organic Chemicals - Maximum Contaminant Level (MCL) Determination, March 2010.
7 - The chemical is selected as a COPC if the maximum detected concentration exceeds the risk-based COPC screening level.
8 - Value is for m-xylene.
Shaded criterion indicates that the maximum detected concentration exceeds one or more screening criteria. Shaded chemical name indicates that the chemical was retained as a COPC.

Associated Samples

FT-MW-01I-20110314	FT-MW-05I-20110314
FT-MW01I-20111018	FT-MW05I-20110929
FT-MW-01S-20110314	FT-MW-05S-20110314
FT-MW01S-20111018	FT-MW05S-20110929
FT-MW-02I-20110315	FT-MW-06I-20110314
FT-MW02I-20110929	FT-MW06I-20110929
FT-MW-02S-20110315	FT-MW-06S-20110314
FT-MW-02S-20110315-D	FT-MW06S-20110929
FT-MW02S-20110929	FT-MW-07S-20110315
FT-MW02S-20110929-D	FT-MW07S-20110929
FT-MW-03-20110314	FT-MW-08I-20110314
FT-MW03S-20111018	FT-MW08I-20110929
FT-MW-04-20110314	FT-MW-08S-20110314
FT-MW04-20110929	FT-MW08S-20110929

Definitions:
ARAR/TBC = Applicable or Relevant and Appropriate Requirements To Be Considered
C = Carcinogen
COPC = Chemical Of Potential Concern
J = Estimated value
N = Noncarcinogen
NA = Not Applicable/Not Available

Rationale Codes:
For selection as a COPC:
ASL = Above Screening Level and site background.

For elimination as a COPC:
BSL = Below COPC Screening Level
NTX = No toxicity criteria
NVT = Not sufficiently volatile and/or toxic to pose inhalation risk

TABLE 2.7
OCCURRENCE, DISTRIBUTION, AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN - MIGRATION FROM GROUNDWATER TO SURFACE WATER
SITE 2 - FIRE TRAINING AREA
NWIRP CALVERTON
CALVERTON, NEW YORK

Scenario Timeframe: Current/Future
Medium: Groundwater
Exposure Medium: Groundwater

Exposure Point	CAS Number	Chemical	Minimum Concentration[1]	Maximum Concentration[1]	Units	Sample of Maximum Concentration	Frequency of Detection	Range of Nondetects[2]	Concentration Used for Screening[3]	Range of Background Concentrations[4]	NYSDEC Surface Water Quality Standards[5]	National Recommended Water Quality Criteria[6]		COPC Flag	Rationale for Contaminant Deletion or Selection[7]
												Human Health Consumption of Water + Organism	Human Health Consumption of Organism Only		
Site 2	**Volatile Organic Compounds**														
	75-34-3	1,1-Dichloroethane	0.81 J	1.3	ug/L	FT-MW02S-20110929-D	3/26	0.5 - 0.5	1.3	NA	NA	NA	NA	No	NTX
	95-50-1	1,2-Dichlorobenzene	0.58 J	3.9	ug/L	FT-MW02S-20110929	2/23	0.5 - 0.5	3.9	NA	5 [8,9]	420	1,300	Yes	ASL
	106-46-7	1,4-Dichlorobenzene	1.2	1.3	ug/L	FT-MW02S-20110929	1/23	0.5 - 0.5	1.3	NA	5 [8,9]	63	190	Yes	ASL
	78-93-3	2-Butanone	6 J	26 J	ug/L	FT-MW-02S-20110315	2/26	2.5 - 2.5	26	NA	NA	NA	NA	No	NTX
	67-64-1	Acetone	9.5 J	27 J	ug/L	FT-MW-02S-20110315	2/26	2.5 - 2.5	27	NA	NA	NA	NA	No	NTX
	67-66-3	Chloroform	0.5 J	0.79 J	ug/L	FT-MW05I-20110929	4/23	0.5 - 0.5	0.79	NA	NA	5.7	470	No	BSL
	156-59-2	cis-1,2-Dichloroethene	0.54 J	4.1 J	ug/L	FT-MW-02S-20110315	3/26	0.5 - 0.5	4.1	NA	NA	NA	NA	No	NTX
	100-41-4	Ethylbenzene	4.7	4.8	ug/L	FT-MW-02S-20110315-D	1/26	0.5 - 0.5	4.8	NA	NA	530	2,100	No	BSL
	98-82-8	Isopropylbenzene	0.8 J	0.89 J	ug/L	FT-MW-02S-20110315	1/23	0.5 - 0.5	0.89	NA	NA	NA	NA	No	NTX
	--	m+p-Xylenes	7.6	7.8	ug/L	FT-MW-02S-20110315	1/26	1 - 1	7.8	NA	NA	NA	NA	No	NTX
	95-47-6	o-Xylene	2.8	16	ug/L	FT-MW-02S-20110315 FT-MW-02S-20110315-D	2/26	0.5 - 0.5	16	NA	NA	NA	NA	No	NTX
	127-18-4	Tetrachloroethene	0.91 J	0.91 J	ug/L	FT-MW-02S-20110315-D	1/26	0.5 - 0.5	0.91	NA	NA	0.69	3.3	Yes	ASL
	108-88-3	Toluene	4.4	4.5	ug/L	FT-MW-02S-20110315	1/26	0.5 - 0.5	4.5	NA	6,000 [10]	1,300	15,000	No	BSL
	79-01-6	Trichloroethene	0.74 J	12	ug/L	FT-MW-02S-20110315-D	3/26	0.5 - 0.5	12	NA	40 [10]	2.5	30	Yes	ASL
	75-01-4	Vinyl Chloride	1.4	1.8	ug/L	FT-MW02S-20110929	1/26	0.5 - 0.5	1.8	NA	NA	0.025	2.4	Yes	ASL
	Volatile Gases														
	74-82-8	Methane	208	470.6	ug/L	FT-MW-02S-20110315	2/6	2.5 - 2.5	470.6	NA	NA	NA	NA	No	NTX

Footnotes:
1 - Sample and duplicate are considered as two separate samples when determining the minimum and maximum concentrations.
2 - Values presented are sample-specific quantitation limits.
3 - The maximum detected concentration is used for screening purposes.
4 - No background data is available for groundwater.
5 - New York State Department of Environmental Conservation (NYSDEC) Part 703.5, Surface Water and Groundwater Quality Standards and Groundwater Effluent Limitations. Values presented are for Class C surface waters.
6 - USEPA National Recommended Water Quality Criteria, 2009.
7 - The chemical is selected as a COPC if the maximum detected concentration exceeds the risk-based COPC screening level.
8 - Value is for sum of dichlorobenzenes.
9 - Based on Aquatic (Chronic).
10 - Based on Health (Fish Consumption).
Shaded criterion indicates that the maximum detected concentration exceeds one or more screening criteria. Shaded chemical name indicates that the chemical was retained as a COPC.

Definitions:
C = Carcinogen
COPC = Chemical Of Potential Concern
J = Estimated value
N = Noncarcinogen
NA = Not Applicable/Not Available

Rationale Codes:
For selection as a COPC:
ASL = Above Screening Level and site background.

For elimination as a COPC:
BSL = Below COPC Screening Level
NUT = Essential nutrient
NTX = No toxicity criteria

Associated Samples

FT-MW-01I-20110314	FT-MW-05I-20110314
FT-MW01I-20111018	FT-MW05I-20110929
FT-MW-01S-20110314	FT-MW-05S-20110314
FT-MW01S-20111018	FT-MW05S-20110929
FT-MW-02I-20110315	FT-MW-06I-20110314
FT-MW02I-20110929	FT-MW06I-20110929
FT-MW-02S-20110315	FT-MW-06S-20110314
FT-MW-02S-20110315-D	FT-MW06S-20110929
FT-MW02S-20110929	FT-MW-07S-20110315
FT-MW02S-20110929-D	FT-MW07S-20110929
FT-MW-03-20110314	FT-MW-08I-20110314
FT-MW03S-20111018	FT-MW08I-20110929
FT-MW-04-20110314	FT-MW-08S-20110314
FT-MW04-20110929	FT-MW08S-20110929

RAGS Part D Table 3

Medium-Specific Exposure Point Concentration Summary

LIST OF TABLES
RAGS PART D TABLE 3
MEDIUM-SPECIFIC EXPOSURE POINT CONCENTRATION SUMMARY

Table No.

3.1.RME Surface/Subsurface Soil
3.2.RME Groundwater

TABLE 3.1.RME
EXPOSURE POINT CONCENTRATION SUMMARY
REASONABLE MAXIMUM EXPOSURE
NWIRP CALVERTON, CALVERTON, NEW YORK

Scenario Timeframe: Current
Medium: Surface Soil
Exposure Medium: Surface/Subsurface Soil

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean	95% UCL (Distribution)	Maximum Concentration (Qualifier)	Exposure Point Concentration			
						Value	Units	Statistic	Rationale
Site 2	Benzo(a)anthracene	mg/kg	69.9	0.228 (N)	460 J	0.228	mg/kg	95% KM (t) UCL	ProUCL 4.1.00
	Benzo(a)pyrene	mg/kg	53.1	0.125 (N)	420	0.125	mg/kg	95% KM (t) UCL	ProUCL 4.1.00
	Benzo(b)fluoranthene	mg/kg	87.4	0.184 (N)	580	0.184	mg/kg	95% KM (t) UCL	ProUCL 4.1.00
	Dibenzo(a,h)anthracene	mg/kg	12.1	0.026 (N)	79	0.026	mg/kg	95% KM (t) UCL	ProUCL 4.1.00
	Indeno(1,2,3-cd)pyrene	mg/kg	37.1	0.084 (N)	260	0.084	mg/kg	95% KM (t) UCL	ProUCL 4.1.00

N = Normal

Exposure point concentrations for the RME scenarios are also the exposure point concentrations for the CTE scenarios.

TABLE 3.2.RME
EXPOSURE POINT CONCENTRATION SUMMARY
REASONABLE MAXIMUM EXPOSURE
NWIRP CALVERTON, CALVERTON, NEW YORK

Scenario Timeframe: Current/Future
Medium: Groundwater
Exposure Medium: Groundwater

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean	95% UCL (Distribution)	Maximum Concentration (Qualifier)	Exposure Point Concentration			
						Value	Units	Statistic	Rationale
Site 2	1,4-Dichlorobenzene	ug/L	0.293	(1)	1.3	1.3	ug/L	Maximum Detected Concentration	(1)
	Chloroform	ug/L	0.313	0.545 (N)	0.79 J	0.545	ug/L	95% KM (t) UCL	ProUCL 4.1.00
	cis-1,2-Dichloroethene	ug/L	0.406	0.892 (N)	4.1 J	0.892	ug/L	95% KM (t) UCL	ProUCL 4.1.00
	Ethylbenzene	ug/L	0.423	(1)	4.8	4.8	ug/L	Maximum Detected Concentration	(1)
	m+p-Xylenes	ug/L	0.777	(1)	7.8	7.8	ug/L	Maximum Detected Concentration	(1)
	o-Xylene	ug/L	0.958	(1)	16	16	ug/L	Maximum Detected Concentration	(1)
	Trichloroethene	ug/L	0.806	1.91 (N)	12	1.91	ug/L	95% KM (t) UCL	ProUCL 4.1.00
	Vinyl Chloride	ug/L	0.302	(1)	1.8	1.8	ug/L	Maximum Detected Concentration	(1)

N - Normal distribution.

1 - There are two or less distinct values. Reliable statistics cannot be computed, therefore the Maximum concentration was used as the EPC.

RAGS Part D Table 4

Values Used For Daily Intake Calculations

LIST OF TABLES
RAGS PART D TABLE 4
VALUES USED FOR DAILY INTAKE CALCULATIONS

Table No.

Reasonable Maximum Exposures

4.1.RME Construction Workers Exposed to Surface Soil/Subsurface Soil
4.2.RME Construction Workers Exposed to Air Emissions from Surface Soil/Subsurface Soil
4.3.RME Construction Workers Exposed to Groundwater
4.4.RME Construction Workers Exposed to Volatile Emissions from Groundwater
4.5.RME Industrial Workers Exposed to Surface Soil/Subsurface Soil
4.6.RME Industrial Workers Exposed to Air Emissions from Surface Soil/Subsurface Soil
4.7.RME Child Recreational Users Exposed to Surface Soil/Subsurface Soil
4.8.RME Child Recreational Users Exposed to Air Emissions from Surface Soil/Subsurface Soil
4.9.RME Adult Recreational Users Exposed to Surface Soil/Subsurface Soil
4.10.RME Adult Recreational Users Exposed to Air Emissions from Surface Soil/Subsurface Soil
4.11.RME Child Residents Exposed to Surface Soil/Subsurface Soil
4.12.RME Child Residents Exposed to Air Emissions from Surface Soil/Subsurface Soil
4.13.RME Child Residents Exposed to Groundwater
4.14.RME Child Residents Exposed to Volatile Emissions from Groundwater
4.15.RME Adult Residents Exposed to Surface Soil/Subsurface Soil
4.16.RME Adult Residents Exposed to Air Emissions from Surface Soil/Subsurface Soil
4.17.RME Adult Residents Exposed to Groundwater
4.18.RME Adult Residents Exposed to Volatile Emissions from Groundwater

Central Tendency Exposures

4.1.CTE Construction Workers Exposed to Surface Soil/Subsurface Soil
4.2.CTE Construction Workers Exposed to Air Emissions from Surface Soil/Subsurface Soil
4.3.CTE Construction Workers Exposed to Groundwater
4.4.CTE Construction Workers Exposed to Volatile Emissions from Groundwater
4.5.CTE Industrial Workers Exposed to Surface Soil/Subsurface Soil
4.6.CTE Industrial Workers Exposed to Air Emissions from Surface Soil/Subsurface Soil
4.7.CTE Child Recreational Users Exposed to Surface Soil/Subsurface Soil
4.8.CTE Child Recreational Users Exposed to Air Emissions from Surface Soil/Subsurface Soil
4.9.CTE Adult Recreational Users Exposed to Surface Soil/Subsurface Soil
4.10.CTE Adult Recreational Users Exposed to Air Emissions from Surface Soil/Subsurface Soil
4.11.CTE Child Residents Exposed to Surface Soil/Subsurface Soil
4.12.CTE Child Residents Exposed to Air Emissions from Surface Soil/Subsurface Soil
4.13.CTE Child Residents Exposed to Groundwater
4.14.CTE Child Residents Exposed to Volatile Emissions from Groundwater
4.15.CTE Adult Residents Exposed to Surface Soil/Subsurface Soil
4.16.CTE Adult Residents Exposed to Air Emissions from Surface Soil/Subsurface Soil
4.17.CTE Adult Residents Exposed to Groundwater
4.18.CTE Adult Residents Exposed to Volatile Emissions from Groundwater

TABLE 4.1.RME

VALUES USED FOR DAILY INTAKE CALCULATIONS

REASONABLE MAXIMUM EXPOSURE - CONSTRUCTION WORKERS- SOILS

NWIRP CALVERTON, CALVERTON, NEW YORK

Scenario Timeframe: Current/Future
Medium: Surface Soil/Subsurface Soil
Exposure Medium: Surface/Subsurface Soil

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Ingestion	Construction Workers	Adult	Site 2	CS	Chemical concentration in soil	Max or 95% UCL	mg/kg	USEPA, 2002a	Intake (mg/kg/day) =
				IR-S	Ingestion Rate	330	mg/day	USEPA, 2002b	
				CF3	Conversion Factor 3	0.000001	kg/mg	--	CS x IRS x CF3 x FI x EF x ED
				FI	Fraction Ingested	1	unitless	USEPA, 2002b	BW x AT
				EF	Exposure Frequency	250	days/year	USEPA, 2002b	
				ED	Exposure Duration	1	years	(1)	
				BW	Body Weight	70	kg	USEPA, 2002b	
				AT-C	Averaging Time (Cancer)	25550	days	USEPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	365	days	USEPA, 1989	
Dermal	Construction Workers	Adult	Site 2	CS	Chemical concentration in soil	Max or 95% UCL	mg/kg	USEPA, 2002a	Dermally Absorbed Dose (mg/kg/day) =
				CF3	Conversion Factor 3	0.000001	kg/mg	--	
				SA	Skin Surface Available for Contact	3300	cm2	USEPA, 2004	CS x CF3 x SA x SSAF x DABS x EV x EF x ED
				SSAF	Soil to Skin Adherence Factor	0.3	mg/cm2/event	USEPA, 2004	BW x AT
				DABS	Absorption Factor	Chemical Specific	unitless	USEPA, 2004	
				EV	Events Frequency	1	events/day	USEPA, 2004	
				EF	Exposure Frequency	250	days/year	USEPA, 2002b	
				ED	Exposure Duration	1	years	(1)	
				BW	Body Weight	70	kg	USEPA, 2002b	
				AT-C	Averaging Time (Cancer)	25550	days	USEPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	365	days	USEPA, 1989	

Notes:

1 - Professional judgment.

Sources:

USEPA, 1989: Risk Assessment Guidance for Superfund. Vol 1: Human Health Evaluation Manual, Part A.

USEPA, 2002a:Calculating Upper Confidence Limits for Exposure Point Concentrations at Hazardous Waste Sites. OSWER 9285.6-10, December.

USEPA, 2002b: Supplemental Guidance for Developing Soil Screening Levels for Superfund Sites. OSWER 9355.4-24.

USEPA, 2004: Risk Assessment Guidance for Superfund (Part E, Supplemental Guidance for Dermal Risk Assessment) Final. EPA/540/R/99/005.

Unit Intake Calculations

Incidental Ingestion Intake = (IR-S x CF3 x FI x EF x ED)/(BW x AT)

Dermal Intake = (CF3 x SA x SSAF x EF x ED)/(BW x AT)

Cancer Ingestion Intake = 4.61E-08 Cancer Dermal Intake = 1.38E-07

Noncancer Ingestion Intake = 3.23E-06 Noncancer Dermal Intake = 9.69E-06

Cancer risk from ingestion = Soil concentration x Cancer Ingestion Intake x Oral Cancer Slope Factor

Cancer risk from dermal contact = Soil concentration x Cancer Dermal Intake x Absorption Factor x Dermal Cancer Slope Factor

Hazard Index from ingestion = Soil concentration x Noncancer Ingestion Intake / Oral Reference Dose

Hazard Index from dermal contact = Soil concentration x Noncancer Dermal Intake x Absorption Factor / Dermal Reference Dose

TABLE 4.2.RME

VALUES USED FOR DAILY INTAKE CALCULATIONS

REASONABLE MAXIMUM EXPOSURE - CONSTRUCTION WORKERS - SOILS TO AIR

NWIRP CALVERTON, CALVERTON, NEW YORK

Scenario Timeframe: Current/Future
Medium: Surface/Subsurface Soil
Exposure Medium: Air

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Inhalation	Construction Workers	Adult	Site 2	CA	Chemical concentration in air	Calculated	mg/m3	USEPA, 2002a	Exposure Concentration (mg/m^3) =
				CS	Chemical concentration in soil	Max or 95% UCL	mg/kg	USEPA, 2002b	
				ET	Exposure Time	8	hours/day	(1)	CA x ET x EF x ED
				EF	Exposure Frequency	250	days/year	USEPA, 2002a	AT x 24 hours/day
				ED	Exposure Duration	1	years	(1)	
				AT-C	Averaging Time (Cancer)	25550	days	USEPA, 1989	CA = (1/PEF + 1/VF) x Cs
				AT-N	Averaging Time (Non-Cancer)	365	days	USEPA, 1989	
				PEF	Particulate Emission Factor	1.40E+06	m3/kg	USEPA, 2002a	
				VF	Volatilization Factor	Chemical-specific	m3/kg	USEPA, 2002a	
				Q/C	Inverse of mean concentration at center of source	14.31	g/m2-s per kg/m3	USEPA, 2002a	

Notes:

1 - Professional judgment.

Sources:

USEPA, 1989: Risk Assessment Guidance for Superfund. Vol 1: Human Health Evaluation Manual, Part A. EPA/540/1-86/060.

USEPA, 1997: Exposure Factors Handbook. USEPA/600/8-95/002FA.

USEPA, 2002a: Supplemental Guidance for Developing Soil Screening Levels for Superfund Sites. OSWER 9355.4-24.

USEPA, 2002b:Calculating Upper Confidence Limits for Exposure Point Concentrations at Hazardous Waste Sites. OSWER 9285.6-10, December.

Unit Intake Calculations

Unit Exposure Concentration = (ET x EF x ED)/(AT x 24 hours/day)

Cancer Inhalation Intake = 3.26E-03 Noncancer Inhalation Intake = 2.28E-01

Cancer risk from ingestion = Air concentration x Cancer Inhalation Intake x Inhalation Cancer Slope Factor

Hazard Index from ingestion = Air concentration x Noncancer Inhalation Intake / Inhalation Reference Dose

TABLE 4.3.RME

VALUES USED FOR DAILY INTAKE CALCULATIONS

REASONABLE MAXIMUM EXPOSURE - CONSTRUCTION WORKERS - GROUNDWATER

NWIRP CALVERTON, CALVERTON, NEW YORK

Scenario Timeframe: Current/Future
Medium: Groundwater
Exposure Medium: Groundwater

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Dermal	Construction Workers	Adult	Site 2	Daevent	Dermally Absorbed Dose per Event	Calculated	mg/cm2-event	USEPA, 2004	Dermally Absorbed Dose (mg/kg/day) =
				Cw	Chemical Concentration in Groundwater	Max or 95% UCL	mg/kg	USEPA, 2002	
				FA	Fraction Absorbed	Chemical Specific	unitless	USEPA, 2004	DAevent x EV x EF x ED x SA
				CF	Conversion factor	0.001	L/cm^3	- -	BW x AT
				Kp	Permeability coefficient	Chemical Specific	cm/hr	USEPA, 2004	
				τ	Lag time	Chemical Specific	hr/event	USEPA, 2004	For inorganics
				t^*	Time it takes to reach steady state	Chemical Specific	hr/event	USEPA, 2004	DAevent = Kp x CW x CF x tevent
				tevent	Duration of event	4	hr/event	(1)	
				B	Bunge model constant	Chemical Specific	unitless	USEPA, 2004	For organics if tevent <= t*
				SA	Skin Surface Available for Contact	3300	cm2	USEPA, 2004	DAevent= 2 x FA x Kp x Cw x CF x sqrt[(6 x τ x tevent)/pi]
				EV	Event Frequency	1	events/day	(1)	
				EF	Exposure Frequency	30	days/year	(1)	For organics if tevent > t*
				ED	Exposure Duration	1	years	(1)	DAevent =FA x Kp x Cw x CF x [tevent/(1+B) +
				BW	Body Weight	70	kg	USEPA, 1989	2 x τ +(1 + 3B + $3B^2$)/(1+B^2)
				AT-C	Averaging Time (Cancer)	25550	days	USEPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	365	days	USEPA, 1989	

Notes

1 - Professional judgment.

USEPA, 1989: Risk Assessment Guidance for Superfund. Vol 1: Human Health Evaluation Manual, Part A. EPA/540/1-86/060.

USEPA, 2002:Calculating Upper Confidence Limits for Exposure Point Concentrations at Hazardous Waste Sites. OSWER 9285.6-10, December.

USEPA, 2004: Risk Assessment Guidance for Superfund (Part E, Supplemental Guidance for Dermal Risk Assessment) Final. EPA/540/R/99/005.

Unit Intake Calculations

Dermal Intake = (SA x EV x EF x ED)/(BW x AT)

Cancer Dermal Intake = 5.54E-02 Noncancer Dermal Intake = 3.87E+00

Cancer risk from dermal contact = Groundwater concentration x Cancer Dermal Intake x DAevent x Dermal Cancer Slope Factor

TABLE 4.4.RME

VALUES USED FOR DAILY INTAKE CALCULATIONS

REASONABLE MAXIMUM EXPOSURE - CONSTRUCTION WORKERS - GROUNDWATER TO AIR

NWIRP CALVERTON, CALVERTON, NEW YORK

Scenario Timeframe: Current/Future
Medium: Groundwater
Exposure Medium: Air

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Inhalation	Construction Workers	Adult	Site 2	CA	Chemical concentration in air	Calculated	mg/m3	VDEQ, 2012	Exposure Concentration (mg/m^3) =
				CW	Chemical concentration in water.	Average	ug/L	--	
				CF	Conversion Factor	0.001	mg/ug	--	CA x ET x EF x ED
				ET	Exposure Time	4	hours/day	(1)	AT x 24 hours/day
				EF	Exposure Frequency	30	days/year	(1)	
				ED	Exposure Duration	1	years	(1)	CA = CW x CF x VF
				AT-C	Averaging Time (Cancer)	25550	days	USEPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	365	days	USEPA, 1989	
				VF	Volatilization Factor	Calculated	(mg/m3)/(mg/L)	VDEQ, 2012	

Notes:

1 - Professional judgment.

USEPA, 1989: Risk Assessment Guidance for Superfund. Vol 1: Human Health Evaluation Manual, Part A. EPA/540/1-86/060.

VDEQ, 2012: Virginia Department of Environmental Quality (VDEQ, online- http://www.deq.state.va.us/vrprisk/homepage.html).

Unit Intake Calculations

Unit Exposure Concentration = (ET x EF x ED)/(AT x 24 hours/day)

Cancer Inhalation Intake = 1.96E-07 Noncancer Inhalation Intake = 1.37E-05

Cancer risk from ingestion = Air concentration x Cancer Inhalation Intake x Inhalation Cancer Slope Factor

Hazard Index from ingestion = Air concentration x Noncancer Inhalation Intake / Inhalation Reference Dose

TABLE 4.5.RME

VALUES USED FOR DAILY INTAKE CALCULATIONS

REASONABLE MAXIMUM EXPOSURE - INDUSTRIAL WORKERS - SOIL

NWIRP CALVERTON, CALVERTON, NEW YORK

Scenario Timeframe: Current/Future
Medium: Surface Soil/Subsurface Soil
Exposure Medium: Surface/Subsurface Soil

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Ingestion	Industrial Workers	Adult	Site 2	CS	Chemical concentration in soil	Max or 95% UCL	mg/kg	USEPA, 2002a	Intake (mg/kg/day) =
				IR-S	Ingestion Rate	100	mg/day	USEPA, 2002b	
				CF3	Conversion Factor 3	0.000001	kg/mg	--	CS x IRS x CF3 x FI x EF x ED
				FI	Fraction Ingested	1	unitless	USEPA, 2002b	BW x AT
				EF	Exposure Frequency	250	days/year	USEPA, 2002b	
				ED	Exposure Duration	25	years	USEPA, 2002b	
				BW	Body Weight	70	kg	USEPA, 1989	
				AT-C	Averaging Time (Cancer)	25550	days	USEPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	9125	days	USEPA, 1989	
Dermal	Industrial Workers	Adult	Site 2	CS	Chemical concentration in soil	Max or 95% UCL	mg/kg	USEPA, 2002	Dermally Absorbed Dose (mg/kg/day) =
				CF3	Conversion Factor 3	0.000001	kg/mg	--	
				SA	Skin Surface Available for Contact	3300	cm2	USEPA, 2004	CS x CF3 x SA x SSAF x DABS x EV x EF x ED
				SSAF	Soil to Skin Adherence Factor	0.2	mg/cm2/event	USEPA, 2004	BW x AT
				DABS	Absorption Factor	Chemical Specific	unitless	USEPA, 2004	
				EV	Events Frequency	1	events/day	USEPA, 2004	
				EF	Exposure Frequency	250	days/year	USEPA, 2002b	
				ED	Exposure Duration	25	years	USEPA, 1989	
				BW	Body Weight	70	kg	USEPA, 1989	
				AT-C	Averaging Time (Cancer)	25550	days	USEPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	9125	days	USEPA, 1989	

Sources:

USEPA, 1989: Risk Assessment Guidance for Superfund. Vol 1: Human Health Evaluation Manual, Part A.

USEPA, 2002a:Calculating Upper Confidence Limits for Exposure Point Concentrations at Hazardous Waste Sites. OSWER 9285.6-10, December.

USEPA, 2002b: Supplemental Guidance for Developing Soil Screening Levels for Superfund Sites. OSWER 9355.4-24.

USEPA, 2004: Risk Assessment Guidance for Superfund (Part E, Supplemental Guidance for Dermal Risk Assessment) Final. EPA/540/R/99/005.

Unit Intake Calculations

Incidental Ingestion Intake = (IR-S x CF3 x FI x EF x ED)/(BW x AT)

Dermal Intake = (CF3 x SA x SSAF x EF x ED)/(BW x AT)

Cancer Ingestion Intake = 3.49E-07 Cancer Dermal Intake = 2.31E-06

Noncancer Ingestion Intake = 9.78E-07 Noncancer Dermal Intake = 6.46E-06

Cancer risk from ingestion = Soil concentration x Cancer Ingestion Intake x Oral Cancer Slope Factor

Cancer risk from dermal contact = Soil concentration x Cancer Dermal Intake x Absorption Factor x Dermal Cancer Slope Factor

Hazard Index from ingestion = Soil concentration x Noncancer Ingestion Intake / Oral Reference Dose

Hazard Index from dermal contact = Soil concentration x Noncancer Dermal Intake x Absorption Factor / Dermal Reference Dose

TABLE 4.6.RME

VALUES USED FOR DAILY INTAKE CALCULATIONS

REASONABLE MAXIMUM EXPOSURE - INDUSTRIAL WORKERS - SOIL TO AIR

NWIRP CALVERTON, CALVERTON, NEW YORK

Scenario Timeframe: Current/Future
Medium: Surface/Subsurface Soil
Exposure Medium: Air

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Inhalation	Industrial Workers	Adult	Site 2	CA	Chemical concentration in air	Calculated	mg/m3	USEPA, 2002a	Exposure Concentration (mg/m^3) =
				CS	Chemical concentration in soil	Max or 95% UCL	mg/kg	USEPA, 2002b	
				ET	Exposure Time	8	hours/day	(1)	CA x ET x EF x ED
				EF	Exposure Frequency	250	days/year	USEPA, 2002a	AT x 24 hours/day
				ED	Exposure Duration	25	years	USEPA, 2002a	
				AT-C	Averaging Time (Cancer)	25550	days	USEPA, 1989	CA = (1/PEF + 1/VF) x Cs
				AT-N	Averaging Time (Non-Cancer)	9125	days	USEPA, 1989	
				PEF	Particulate Emission Factor	1.21E+09	m3/kg	NYSDEC, 2006	
				VF	Volatilization Factor	Chemical-specific	m3/kg	USEPA, 2002a	
				Q/C	Inverse of mean concentration at center of source	83.53	g/m2-s per kg/m3	NYSDEC, 2006	

Notes:

1 - Length of typical work day.

Sources:

NYSDEC, 2006: New York State Brownfields Program, Development of Soil Cleanup Objectives, Technical Support Document.

USEPA, 1989: Risk Assessment Guidance for Superfund. Vol 1: Human Health Evaluation Manual, Part A. USEPA/540/1-86/060.

USEPA, 2002a: Supplemental Guidance for Developing Soil Screening Levels for Superfund Sites. OSWER 9355.4-24.

USEPA, 2002b:Calculating Upper Confidence Limits for Exposure Point Concentrations at Hazardous Waste Sites. OSWER 9285.6-10, December.

Unit Intake Calculations

Unit Exposure Concentration = (ET x EF x ED)/(AT x 24 hours/day)

Cancer Inhalation Intake = 8.15E-02 Noncancer Inhalation Intake = 2.28E-01

Cancer risk from ingestion = Air concentration x Cancer Inhalation Intake x Inhalation Cancer Slope Factor

Hazard Index from ingestion = Air concentration x Noncancer Inhalation Intake / Inhalation Reference Dose

TABLE 4.7.RME
VALUES USED FOR DAILY INTAKE CALCULATIONS
REASONABLE MAXIMUM EXPOSURE - CHILD RECREATIONAL USERS - SOILS
NWIRP CALVERTON, CALVERTON, NEW YORK

Scenario Timeframe: Current/Future
Medium: Surface Soil/Subsurface Soil
Exposure Medium: Surface/Subsurface Soil

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Ingestion	Recreational User	Child	Site 2	CS	Chemical concentration in soil	Max or 95% UCL	mg/kg	USEPA, 2002	Intake (mg/kg/day) =
				IR-S	Ingestion Rate	200	mg/day	USEPA, 1991	
				CF3	Conversion Factor 3	0.000001	kg/mg	--	CS x IRS x CF3 x FI x EF x ED
				FI	Fraction Ingested	0.5	unitless	(1)	BW x AT
				EF	Exposure Frequency	52	days/year	(2)	
				ED1	Exposure Duration (Age 0 - 2)	2	years	(3), USEPA, 1989, 2005	
				ED2	Exposure Duration (Age 2 - 6)	4	years	(3), USEPA, 1989, 2005	
				BW	Body Weight	15	kg	USEPA, 1989	
				AT-C	Averaging Time (Cancer)	25550	days	USEPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	2190	days	USEPA, 1989	
Dermal	Recreational User	Child	Site 2	CS	Chemical concentration in soil	Max or 95% UCL	mg/kg	USEPA, 2002	Dermally Absorbed Dose (mg/kg/day) =
				CF3	Conversion Factor 3	0.000001	kg/mg	--	
				SA	Skin Surface Available for Contact	2,800	cm2	USEPA, 2004	CS x CF3 x SA x SSAF x DABS x EV x EF x ED
				SSAF	Soil to Skin Adherence Factor	0.2	mg/cm2/event	USEPA, 2004	BW x AT
				DABS	Absorption Factor	Chemical Specific	unitless	USEPA, 2004	
				EV	Events Frequency	1	events/day	USEPA, 2004	
				EF	Exposure Frequency	52	days/year	(2)	
				ED1	Exposure Duration (Age 0 - 2)	2	years	(3), USEPA, 1989, 2005	
				ED2	Exposure Duration (Age 2 - 6)	4	years	(3), USEPA, 1989, 2005	
				BW	Body Weight	15	kg	USEPA, 1989	
				AT-C	Averaging Time (Cancer)	25550	days	USEPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	2190	days	USEPA, 1989	

Notes:

1 - The child recreational user is assumed to be at the site only a portion of the day.

2 - Assume two days a week in warm weather months for reasonable maximum exposure and one day a week for central tendency exposure.

3 - Children will be evaluated as one age group (0 - 6 years) for non-mutagenic chemicals. For chemicals that act via the mutagenic mode of action, children recreational users will be evaluated as two age groups, 0 - 2 years and 2 - 6 years in accordance with USEPA's Supplemental Guidance of Assessing Susceptibility from Early-Life Exposure to Carcinogens (USEPA, 2005).

Sources:

USEPA, 1989: Risk Assessment Guidance for Superfund. Vol 1: Human Health Evaluation Manual, Part A. EPA/540/1-86/060.

USEPA, 1991: Human Health Evaluation Manual, Supplemental Guidance: Standard Default Exposure Factors. OSWER Directive 9285.6-03.

USEPA, 2002: Calculating Upper Confidence Limits for Exposure Point Concentrations at Hazardous Waste Sites. OSWER 9285.6-10, December.

USEPA, 2004: Risk Assessment Guidance for Superfund (Part E, Supplemental Guidance for Dermal Risk Assessment) Final. EPA/540/R/99/005.

Unit Intake Calculations

Incidental Ingestion Intake = (IR-S x CF3 x FI x EF x ED)/(BW x AT)

Dermal Intake = (CF3 x SA x SSAF x EF x ED)/(BW x AT)

Non-Mutagenic Chemicals

Cancer Ingestion Intake (Age 0 - 6) = 8.14E-08 Cancer Dermal Intake (Age 0 - 6) = 4.56E-07

Mutagenic Chemicals

Cancer Ingestion Intake (Age 0 - 2) = 2.71E-08 Cancer Dermal Intake (Age 0 - 2) = 1.52E-07

Cancer Ingestion Intake (Age 2 - 6) = 5.43E-08 Cancer Dermal Intake (Age 2 - 6) = 3.04E-07

Noncarcinogenic Chemicals

Noncancer Ingestion Intake = 9.50E-07 Noncancer Dermal Intake = 5.32E-06

Cancer risk from ingestion = Soil concentration x Cancer Ingestion Intake x Oral Cancer Slope Factor

Cancer risk from dermal contact = Soil concentration x Cancer Dermal Intake x Absorption Factor x Dermal Cancer Slope Factor

Hazard Index from ingestion = Soil concentration x Noncancer Ingestion Intake / Oral Reference Dose

Hazard Index from dermal contact = Soil concentration x Noncancer Dermal Intake x Absorption Factor / Dermal Reference Dose

TABLE 4.8.RME

VALUES USED FOR DAILY INTAKE CALCULATIONS

REASONABLE MAXIMUM EXPOSURE - CHILD RECREATIONAL USERS - SOILS TO AIR

NWIRP CALVERTON, CALVERTON, NEW YORK

Scenario Timeframe: Current/Future
Medium: Surface/Subsurface Soil
Exposure Medium: Air

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Inhalation	Recreational User	Child	Site 2	CA	Chemical concentration in air	Calculated	mg/m3	USEPA, 2002a	Exposure Concentration (mg/m^3) =
				CS	Chemical concentration in soil	Max or 95% UCL	mg/kg	USEPA, 2002b	
				ET	Exposure Time	4	hours/day	(1)	CA x ET x EF x ED
				EF	Exposure Frequency	52	days/year	(2)	AT x 24 hours/day
				ED1	Exposure Duration (Age 0 - 2)	2	years	(3), USEPA, 1989, 2005	
				ED2	Exposure Duration (Age 2 - 6)	4	years	(3), USEPA, 1989, 2005	CA = (1/PEF + 1/VF) x Cs
				AT-C	Averaging Time (Cancer)	25,550	days	USEPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	2,190	days	USEPA, 1989	
				PEF	Particulate Emission Factor	1.21E+09	m3/kg	NYSDEC, 2006	
				VF	Volatilization Factor	Chemical-specific	m3/kg	USEPA, 2002a	
				Q/C	Inverse of mean concentration at center of source	83.53	g/m2-s per kg/m3	NYSDEC, 2006	

Notes:

1 - Professional judgment.

2 - Assume two days a week in warm weather months for reasonable maximum exposure and one day a week for central tendency exposure.

3 - Children will be evaluated as one age group (0 - 6 years) for non-mutagenic chemicals. For chemicals that act via the mutagenic mode of action, children recreational users will be evaluated as two age groups, 0 - 2 years and 2 - 6 years in accordance with USEPA's Supplemental Guidance of Assessing Susceptibility from Early-Life Exposure to Carcinogens (USEPA, 2005).

Sources:

NYSDEC, 2006: New York State Brownfields Program, Development of Soil Cleanup Objectives, Technical Support Document.

USEPA, 1989: Risk Assessment Guidance for Superfund. Vol 1: Human Health Evaluation Manual, Part A. USEPA/540/1-86/060.

USEPA, 2002a: Supplemental Guidance for Developing Soil Screening Levels for Superfund Sites. OSWER 9355.4-24.

USEPA, 2002b:Calculating Upper Confidence Limits for Exposure Point Concentrations at Hazardous Waste Sites. OSWER 9285.6-10, December.

Unit Intake Calculations

Unit Exposure Concentration = (ET x EF x ED)/(AT x 24 hours/day)

Non-Mutagenic Chemicals

Cancer Inhalation Intake (Age 0 - 6) = 2.04E-03 Noncancer Inhalation Intake = 2.37E-02

Mutagenic Chemicals

Cancer Inhalation Intake (Age 0 - 2) = 6.78E-04

Cancer Inhalation Intake (Age 2 - 6) = 1.36E-03

Cancer risk from ingestion = Air concentration x Cancer Inhalation Intake x Inhalation Cancer Slope Factor

Hazard Index from ingestion = Air concentration x Noncancer Inhalation Intake / Inhalation Reference Dose

TABLE 4.9.RME
VALUES USED FOR DAILY INTAKE CALCULATIONS
REASONABLE MAXIMUM EXPOSURE - ADULT RECREATIONAL USERS - SOILS
NWIRP CALVERTON, CALVERTON, NEW YORK

Scenario Timeframe: Current/Future
Medium: Surface Soil/Subsurface Soil
Exposure Medium: Surface/Subsurface Soil

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Ingestion	Recreational User	Adult	Site 2	CS	Chemical concentration in soil	Max or 95% UCL	mg/kg	USEPA, 2002	Intake (mg/kg/day) =
				IR-S	Ingestion Rate	100	mg/day	USEPA, 1991	
				CF3	Conversion Factor 3	1.0E-06	kg/mg	--	CS x IRS x CF3 x FI x EF x ED
				FI	Fraction Ingested	0.5	unitless	(1)	BW x AT
				EF	Exposure Frequency	52	days/year	(2)	
				ED1	Exposure Duration (Age 6 - 16)	10	years	(3), USEPA, 1989, 2005	
				ED2	Exposure Duration (Age 16 - 30)	14	years	(3), USEPA, 1989, 2005	
				BW	Body Weight	70	kg	USEPA, 1989	
				AT-C	Averaging Time (Cancer)	25,550	days	USEPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	8,760	days	USEPA, 1989	
Dermal	Recreational User	Adult	Site 2	CS	Chemical concentration in soil	Max or 95% UCL	mg/kg	USEPA, 2002	Dermally Absorbed Dose (mg/kg/day) =
				CF3	Conversion Factor 3	1.0E-06	kg/mg	--	
				SA	Skin Surface Available for Contact	5,700	cm2	USEPA, 2004	CS x CF3 x SA x SSAF x DABS x EV x EF x ED
				SSAF	Soil to Skin Adherence Factor	0.07	mg/cm2/event	USEPA, 2004	BW x AT
				DABS	Absorption Factor	Chemical Specific	unitless	USEPA, 2004	
				EV	Events Frequency	1	events/day	USEPA, 2004	
				EF	Exposure Frequency	52	days/year	(2)	
				ED1	Exposure Duration (Age 6 - 16)	10	years	(3), USEPA, 1989, 2005	
				ED2	Exposure Duration (Age 16 - 30)	14	years	(3), USEPA, 1989, 2005	
				BW	Body Weight	70	kg	USEPA, 1989	
				AT-C	Averaging Time (Cancer)	25,550	days	USEPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	8,760	days	USEPA, 1989	

Notes:

1 - The adult recreational user is assumed to be at the site only a portion of the day.

2 - Assume two days a week in warm weather months for reasonable maximum exposure and one day a week for central tendency exposure.

3 - Adults will be evaluated as one age group (7 - 30 years) for non-mutagenic chemicals. For chemicals that act via the mutagenic mode of action, adult recreational users will be evaluated as two age groups, 7 - 16 years and 16 - 30 years in accordance with USEPA's Supplemental Guidance of Assessing Susceptibility from Early-Life Exposure to Carcinogens (USEPA, 2005).

Sources:

USEPA, 1989: Risk Assessment Guidance for Superfund. Vol 1: Human Health Evaluation Manual, Part A. EPA/540/1-86/060.

USEPA, 1991: Risk Assessment Guidance for Superfund - Supplemental Guidance- Standard Default Exposure Factors Interim Final.

USEPA, 2002: Calculating Upper Confidence Limits for Exposure Point Concentrations at Hazardous Waste Sites. OSWER 9285.6-10, December.

USEPA, 2004: Risk Assessment Guidance for Superfund (Part E, Supplemental Guidance for Dermal Risk Assessment) Final. EPA/540/R/99/005.

Unit Intake Calculations

Incidental Ingestion Intake = (IR-S x CF3 x FI x EF x ED)/(BW x AT)

Dermal Intake = (CF3 x SA x SSAF x EF x ED)/(BW x AT)

Non-Mutagenic Chemicals

Cancer Ingestion Intake (Age 6 - 30) = 3.49E-08 Cancer Dermal Intake (Age 6 - 30) = 2.78E-07

Mutagenic Chemicals

Cancer Ingestion Intake (Age 6 - 16) = 1.45E-08 Cancer Dermal Intake (Age 6 - 16) = 1.16E-07

Cancer Ingestion Intake Age 16 - 30) = 2.04E-08 Cancer Dermal Intake (Age 16 - 30) = 1.62E-07

Noncarcinogenic Chemicals

Noncancer Ingestion Intake = 1.02E-07 Noncancer Dermal Intake = 8.12E-07

Cancer risk from ingestion = Soil concentration x Cancer Ingestion Intake x Oral Cancer Slope Factor

Cancer risk from dermal contact = Soil concentration x Cancer Dermal Intake x Absorption Factor x Dermal Cancer Slope Factor

Hazard Index from Ingestion = Soil concentration x Noncancer Ingestion Intake / Oral Reference Dose

Hazard Index from dermal contact = Soil concentration x Noncancer Dermal Intake x Absorption Factor / Dermal Reference Dose

TABLE 4.10.RME

VALUES USED FOR DAILY INTAKE CALCULATIONS

REASONABLE MAXIMUM EXPOSURE - ADULT RECREATIONAL USERS - SOILS TO AIR

NWIRP CALVERTON, CALVERTON, NEW YORK

Scenario Timeframe: Current/Future
Medium: Surface/Subsurface Soil
Exposure Medium: Air

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Inhalation	Recreational User	Adult	Site 2	CA	Chemical concentration in air	Calculated	mg/m3	USEPA, 2002a	Exposure Concentration (mg/m^3) =
				CS	Chemical concentration in soil	Max or 95% UCL	mg/kg	USEPA, 2002b	
				ET	Exposure Time	4	hours/day	(1)	CA x ET x EF x ED
				EF	Exposure Frequency	52	days/year	(2)	AT x 24 hours/day
				ED1	Exposure Duration (Age 6 - 16)	10	years	(3), USEPA, 1989, 2005	
				ED2	Exposure Duration (Age 16 - 30)	14	years	(3), USEPA, 1989, 2005	CA = (1/PEF + 1/VF) x Cs
				AT-C	Averaging Time (Cancer)	25,550	days	USEPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	8760	days	USEPA, 1989	
				PEF	Particulate Emission Factor	1.21E+09	m3/kg	NYSDEC, 2006	
				VF	Volatilization Factor	Chemical-specific	m3/kg	USEPA, 2002a	
				Q/C	Inverse of mean concentration at center of source	83.53	g/m2-s per kg/m3	NYSDEC, 2006	

Notes:

1 - Professional judgment.

2 - Assume two days a week in warm weather months for reasonable maximum exposure and one day a week for central tendency exposure.

3 - Adults will be evaluated as one age group (7 - 30 years) for non-mutagenic chemicals. For chemicals that act via the mutagenic mode of action, adult recreational users will be evaluated as two age groups, 7 - 16 years and 16 - 30 years in accordance with USEPA's Supplemental Guidance of Assessing Susceptibility from Early-Life Exposure to Carcinogens (USEPA, 2005).

Sources:

NYSDEC, 2006: New York State Brownfields Program, Development of Soil Cleanup Objectives, Technical Support Document.

USEPA, 1989: Risk Assessment Guidance for Superfund. Vol 1: Human Health Evaluation Manual, Part A. USEPA/540/1-86/060.

USEPA, 2002a: Supplemental Guidance for Developing Soil Screening Levels for Superfund Sites. OSWER 9355.4-24.

USEPA, 2002b: Calculating Upper Confidence Limits for Exposure Point Concentrations at Hazardous Waste Sites. OSWER 9285.6-10, December.

USEPA, 2008: Soil Screening Guidance calculation Internet site at http://risk.lsd.ornl.gov/calc_start.htm. Site-specific values for Hartford, Connecticut.

Unit Intake Calculations

Unit Exposure Concentration = (ET x EF x ED)/(AT x 24 hours/day)

Non-Mutagenic Chemicals

Cancer Inhalation Intake (Age 6 - 30) = 8.14E-03

Noncarcinogenic Chemicals

Noncancer Inhalation Intake = 2.37E-02

Mutagenic Chemicals

Cancer Inhalation Intake (Age 6 - 16) = 3.39E-03

Cancer Inhalation Intake (Age 16 - 30) = 4.75E-03

Cancer risk from ingestion = Air concentration x Cancer Inhalation Intake x Inhalation Cancer Slope Factor

Hazard Index from ingestion = Air concentration x Noncancer Inhalation Intake / Inhalation Reference Dose

TABLE 4.11.RME
VALUES USED FOR DAILY INTAKE CALCULATIONS
REASONABLE MAXIMUM EXPOSURE - CHILD RESIDENTS - SOILS
NWIRP CALVERTON, CALVERTON, NEW YORK

Scenario Timeframe: Future
Medium: Surface Soil/Subsurface Soil
Exposure Medium: Surface/Subsurface Soil

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Ingestion	Resident	Child	Site 2	CS	Chemical concentration in soil	Max or 95% UCL	mg/kg	USEPA, 2002	Intake (mg/kg/day) =
				IR-S	Ingestion Rate	200	mg/day	USEPA, 1991	
				CF3	Conversion Factor 3	1.0E-06	kg/mg	--	CS x IRS x CF3 x FI x EF x ED
				FI	Fraction Ingested	1	unitless	USEPA, 1991	BW x AT
				EF	Exposure Frequency	350	days/year	USEPA, 1991	
				ED1	Exposure Duration (Age 0 - 2)	2	years	(1), USEPA, 1989, 2005	
				ED2	Exposure Duration (Age 2 - 6)	4	years	(1), USEPA, 1989, 2005	
				BW	Body Weight	15	kg	USEPA, 1989	
				AT-C	Averaging Time (Cancer)	25,550	days	USEPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	2,190	days	USEPA, 1989	
Dermal	Resident	Child	Site 2	CS	Chemical concentration in soil	Max or 95% UCL	mg/kg	USEPA, 2002	Dermally Absorbed Dose (mg/kg/day) =
				CF3	Conversion Factor 3	1E-06	kg/mg	--	
				SA	Skin Surface Available for Contact	2,800	cm2	USEPA, 2004	CS x CF3 x SA x SSAF x DABS x EV x EF x ED
				SSAF	Soil to Skin Adherence Factor	0.2	mg/cm2/event	USEPA, 2004	BW x AT
				DABS	Absorption Factor	Chemical Specific	unitless	USEPA, 2004	
				EV	Events Frequency	1	events/day	USEPA, 2004	
				EF	Exposure Frequency	350	days/year	USEPA, 1991	
				ED1	Exposure Duration (Age 0 - 2)	2	years	(1), USEPA, 1989, 2005	
				ED2	Exposure Duration (Age 2 - 6)	4	years	(1), USEPA, 1989, 2005	
				BW	Body Weight	15	kg	USEPA, 1989	
				AT-C	Averaging Time (Cancer)	25,550	days	USEPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	2,190	days	USEPA, 1989	

Notes:

1 - Children will be evaluated as one age group (0 - 6 years) for non-mutagenic chemicals. For chemicals that act via the mutagenic mode of action, residential children will be evaluated as two age groups, 0 - 2 years and 2 - 6 years in accordance with USEPA's Supplemental Guidance of Assessing Susceptibility from Early-Life Exposure to Carcinogens (USEPA, 2005).

Sources:

USEPA, 1989: Risk Assessment Guidance for Superfund. Vol 1: Human Health Evaluation Manual, Part A. EPA/540/1-86/060

USEPA, 1991: Risk Assessment Guidance for Superfund - Supplemental Guidance- Standard Default Exposure Factors Interim Final.

USEPA, 2002:Calculating Upper Confidence Limits for Exposure Point Concentrations at Hazardous Waste Sites. OSWER 9285 6-10, December.

USEPA, 2004: Risk Assessment Guidance for Superfund (Part E, Supplemental Guidance for Dermal Risk Assessment) Final. EPA/540/R/99/005.

Unit Intake Calculations

Incidental Ingestion Intake = (IR-S x CF3 x FI x EF x ED)/(BW x AT)

Dermal Intake = (CF3 x SA x SSAF x EF x ED)/(BW x AT)

Non-Mutagenic Chemicals

Cancer Ingestion Intake (Age 0 - 6) = 1.10E-06 Cancer Dermal Intake (Age 0 - 6) = 3.07E-06

Mutagenic Chemicals

Cancer Ingestion Intake (Age 0 - 2) = 3.65E-07 Cancer Dermal Intake (Age 0 - 2) = 1.02E-06

Cancer Ingestion Intake (Age 2 - 6) = 7.31E-07 Cancer Dermal Intake (Age 2 - 6) = 2.05E-06

Noncarcinogenic Chemicals

Noncancer Ingestion Intake = 1.28E-05 Noncancer Dermal Intake = 3.58E-05

Cancer risk from ingestion = Soil concentration x Cancer Ingestion Intake x Oral Cancer Slope Factor

Cancer risk from dermal contact = Soil concentration x Cancer Dermal Intake x Absorption Factor x Dermal Cancer Slope Factor

Hazard Index from Ingestion = Soil concentration x Noncancer Ingestion Intake / Oral Reference Dose

Hazard Index from dermal contact = Soil concentration x Noncancer Dermal Intake x Absorption Factor / Dermal Reference Dose

TABLE 4.12.RME
VALUES USED FOR DAILY INTAKE CALCULATIONS
REASONABLE MAXIMUM EXPOSURE - CHILD RESIDENTS SOILS TO AIR
NWIRP CALVERTON, CALVERTON, NEW YORK

Scenario Timeframe: Future
Medium: Surface/Subsurface Soil
Exposure Medium: Air

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Inhalation	Resident	Child	Site 2	CA	Chemical concentration in air	Calculated	mg/m3	USEPA, 2002a	Exposure Concentration (mg/m^3) =
				CS	Chemical concentration in soil	Max or 95% UCL	mg/kg	USEPA, 2002b	
				ET	Exposure Time	24	hours/day	USEPA, 1991	CA x ET x EF x ED
				EF	Exposure Frequency	350	days/year	USEPA, 1991	AT x 24 hours/day
				ED1	Exposure Duration (Age 0 - 2)	2	years	(1), USEPA, 1989, 2005	
				ED2	Exposure Duration (Age 2 - 6)	4	years	(1), USEPA, 1989, 2005	CA = (1/PEF + 1/VF) x Cs
				AT-C	Averaging Time (Cancer)	25,550	days	USEPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	2190	days	USEPA, 1989	
				PEF	Particulate Emission Factor	1.21E+09	m3/kg	NYSDEC, 2006	
				VF	Volatilization Factor	Chemical-specific	m3/kg	USEPA, 2002a	
				Q/C	Inverse of mean concentration at center of source	83.53	g/m2-s per kg/m3	NYSDEC, 2006	

Notes:

1 - Children will be evaluated as one age group (0 - 6 years) for non-mutagenic chemicals. For chemicals that act via the mutagenic mode of action, residential children will be evaluated as two age groups, 0 - 2 years and 2 - 6 years in accordance with USEPA's Supplemental Guidance of Assessing Susceptibility from Early-Life Exposure to Carcinogens (USEPA, 2005).

Sources:

NYSDEC, 2006: New York State Brownfields Program, Development of Soil Cleanup Objectives, Technical Support Document.

USEPA, 1989: Risk Assessment Guidance for Superfund. Vol 1: Human Health Evaluation Manual, Part A. USEPA/540/1-86/060.

USEPA, 1991: Risk Assessment Guidance for Superfund - Supplemental Guidance- Standard Default Exposure Factors Interim Final.

USEPA, 2002a: Supplemental Guidance for Developing Soil Screening Levels for Superfund Sites. OSWER 9355.4-24.

USEPA, 2002b: Calculating Upper Confidence Limits for Exposure Point Concentrations at Hazardous Waste Sites. OSWER 9285.6-10, December.

Unit Intake Calculations

Unit Exposure Concentration = (ET x EF x ED)/(AT x 24 hours/day)

Non-Mutagenic Chemicals

Cancer Inhalation Intake (Age 0 - 6) = 8.22E-02

Mutagenic Chemicals

Cancer Inhalation Intake (Age 0 - 2) = 2.74E-02

Cancer Inhalation Intake (Age 2 - 6) = 5.48E-02

Noncarcinogenic Chemicals

Noncancer Inhalation Intake = 1.92E+00

Cancer risk from ingestion = Air concentration x Cancer Inhalation Intake x Inhalation Cancer Slope Factor

Hazard Index from ingestion = Air concentration x Noncancer Inhalation Intake / Inhalation Reference Dose

TABLE 4.13.RME
VALUES USED FOR DAILY INTAKE CALCULATIONS
REASONABLE MAXIMUM EXPOSURE - CHILD RESIDENTS - GROUNDWATER
NWIRP CALVERTON, CALVERTON, NEW YORK

Scenario Timeframe: Future
Medium: Groundwater
Exposure Medium: Groundwater

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Ingestion	Residents	Child	Site 2	CGW	Chemical Concentration in Groundwater	Max or 95% UCL	mg/kg	USEPA, 2002a	Chronic Daily Intake (CDI) (mg/kg/day) =
				CF	Conversion Factor	0.001	mg/ug	--	
				IR-GW	Ingestion Rate of Groundwater	1	L/day	USEPA, 1989	CGW x CF x IR-GW x EF x ED
				EF	Exposure Frequency	350	days/year	USEPA, 1991	BW x AT
				ED1	Exposure Duration (Age 0 - 2)	2	years	(1), USEPA, 1989, 2005	
				ED2	Exposure Duration (Age 2 - 6)	4	years	(1), USEPA, 1989, 2005	
				BW	Body Weight	15	kg	USEPA, 1991	
				AT-C	Averaging Time (Cancer)	25,550	days	USEPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	2,190	days	USEPA, 1989	
Dermal	Residents	Child	Site 2	Daevent	Dermally Absorbed Dose per Event	Calculated	mg/cm2-event	USEPA, 2004	Dermally Absorbed Dose (mg/kg/day) =
				Cw	Chemical Concentration in Groundwater	Max or 95% UCL	mg/kg	USEPA, 2002a	
				FA	Fraction Absorbed	Chemical Specific	unitless	USEPA, 2004	DAevent x EV x EF x ED x SA
				CF	Conversion factor	0.001	L/cm^3	--	BW x AT
				Kp	Permeability coefficient	Chemical Specific	cm/hr	USEPA, 2004	
				τ	Lag time	Chemical Specific	hr/event	USEPA, 2004	For inorganics
				t*	Time it takes to reach steady state	Chemical Specific	hr/event	USEPA, 2004	DAevent = Kp x CW x CF x tevent
				tevent	Duration of event	1	hr/event	USEPA, 2004	
				B	Bunge model constant	Chemical Specific	unitless	USEPA, 2004	For organics if tevent <= t*
				SA	Skin Surface Available for Contact	6,600	cm2	USEPA, 2004	DAevent= 2 x FA x Kp x Cw x CF x sqrt[(6 x τ x tevent)/pi]
				EV	Event Frequency	1	events/day	USEPA, 2004	
				EF	Exposure Frequency	350	days/year	USEPA, 1991	
				ED1	Exposure Duration (Age 0 - 2)	2	years	(1), USEPA, 1989, 2005	DAevent =FA x Kp x Cw x CF x [tevent/(1+B) +
				ED2	Exposure Duration (Age 2 - 6)	4	years	(1), USEPA, 1989, 2005	2 x τ +(1 + 3B + $3B^2$)/(1+B^2)
				BW	Body Weight	15	kg	USEPA, 1991	
				AT-C	Averaging Time (Cancer)	25,550	days	USEPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	2,190	days	USEPA, 1989	

Notes:

1 - Children will be evaluated as one age group (0 - 6 years) for non-mutagenic chemicals. For chemicals that act via the mutagenic mode of action, residential children will be evaluated as two age groups, 0 - 2 years and 2 - 6 years in accordance with USEPA's Supplemental Guidance of Assessing Susceptibility from Early-Life Exposure to Carcinogens (USEPA, 2005).

Sources:

USEPA, 1989: Risk Assessment Guidance for Superfund. Vol 1: Human Health Evaluation Manual, Part A. EPA/540/1-86/060.

USEPA, 1991: Risk Assessment Guidance for Superfund - Supplemental Guidance- Standard Default Exposure Factors Interim Final.

USEPA, 2002:Calculating Upper Confidence Limits for Exposure Point Concentrations at Hazardous Waste Sites. OSWER 9285.6-10, December.

USEPA, 2004: Risk Assessment Guidance for Superfund (Part E, Supplemental Guidance for Dermal Risk Assessment) Final. EPA/540/R/99/005.

Unit Intake Calculations

Ingestion Intake = (IR-GW x EF x ED)/(BW x AT)

Dermal Intake = (SA x EV x EF x ED)/(BW x AT)

Non-Mutagenic Chemicals

Cancer Ingestion Intake (Age 0 - 6) = 5.48E-06 Cancer Dermal Intake Time (Age 0 - 6) = 3.62E+01

Mutagenic Chemicals

Cancer Ingestion Intake (Age 0 - 2) = 1.83E-06 Cancer Dermal Intake (Age 0 - 2) = 1.21E+01

Cancer Ingestion Intake (Age 2 - 6) = 3.65E-06 Cancer Dermal Intake (Age 2 - 6) = 2.41E+01

Noncarcinogenic Chemicals

Noncancer Ingestion Intake = 6.39E-05 Noncancer Dermal Intake = 4.22E+02

Cancer risk from ingestion = Groundwater concentration x Cancer Ingestion Intake x Oral Cancer Slope Factor

Cancer risk from dermal contact = Groundwater concentration x Cancer Dermal Intake x DAevent x Dermal Cancer Slope Factor

Hazard Index from ingestion = Groundwater concentration x Noncancer Ingestion Intake / Oral Reference Dose

Hazard Index from dermal contact = Groundwater concentration x Noncancer Dermal Intake x DAevent / Dermal Reference Dose

TABLE 4.14.RME

VALUES USED FOR DAILY INTAKE CALCULATIONS

REASONABLE MAXIMUM EXPOSURE - CHILD RESIDENTS - INHALATION OF VOLATILES FROM GROUNDWATER

NWIRP CALVERTON, CALVERTON, NEW YORK

Scenario Timeframe: Current/Future
Medium: Groundwater
Exposure Medium: Air

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Inhalation	Residents	Adult	Site 2	CA	Chemical concentration in air	Calculated	mg/m3	USEPA, 1991a	Exposure Concentration (mg/m^3) =
				GW	Chemical concentration in water.	95% UCL or Max	ug/L	USEPA, 2002	
				CF	Conversion Factor	0.001	mg/ug	--	CA x ET x EF x ED
				ET	Exposure Time	24	hours/day	USEPA, 1991a	AT x 24 hours/day
				EF	Exposure Frequency	350	days/year	USEPA, 1991b	
				ED1	Exposure Duration (Age 0 - 2)	2	years	(1), USEPA, 1989, 2005	CA = CW x CF x VF
				ED2	Exposure Duration (Age 2 - 6)	4	years	(1), USEPA, 1989, 2005	
				AT-C	Averaging Time (Cancer)	25550	days	USEPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	2190	days	USEPA, 1989	
				VF	Volatilization Factor	0.5	L/m3	USEPA, 1991a	

Notes:

1 - Children will be evaluated as one age group (0 - 6 years) for non-mutagenic chemicals. For chemicals that act via the mutagenic mode of action, residential children will be evaluated as two age groups, 0 - 2 years and 2 - 6 years in accordance with USEPA's Supplemental Guidance of Assessing Susceptibility from Early-Life Exposure to Carcinogens (USEPA, 2005).

USEPA, 1989: Risk Assessment Guidance for Superfund. Vol 1: Human Health Evaluation Manual, Part A. EPA/540/1-86/060.

USEPA, 1991a: Human Health Evaluation Manual, Part B: Development of Risk-based Preliminary Remediation Goals. OSWER Directive 9285.7-01B.

USEPA, 1991b: Risk Assessment Guidance for Superfund - Supplemental Guidance- Standard Default Exposure Factors Interim Final.

USEPA, 2002: Calculating Upper Confidence Limits for Exposure Point Concentrations at Hazardous Waste Sites. OSWER 9285.6-10.

Unit Intake Calculations

Unit Exposure Concentration = (ET x EF x ED)/(AT x 24 hours/day)

Cancer Inhalation Intake = 2.74E-05 Noncancer Inhalation Intake = 3.20E-04

Cancer risk from ingestion = Air concentration x Cancer Inhalation Intake x Inhalation Cancer Slope Factor

Hazard Index from ingestion = Air concentration x Noncancer Inhalation Intake / Inhalation Reference Dose

TABLE 4.15.RME
VALUES USED FOR DAILY INTAKE CALCULATIONS
REASONABLE MAXIMUM EXPOSURE - ADULT RESIDENTS - SOILS
NWIRP CALVERTON, CALVERTON, NEW YORK

Scenario Timeframe: Future
Medium: Surface Soil/Subsurface Soil
Exposure Medium: Surface/Subsurface Soil

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Ingestion	Resident	Adult	Site 2	CS	Chemical concentration in soil	Max or 95% UCL	mg/kg	USEPA, 2002a	Intake (mg/kg/day) =
				IR-S	Ingestion Rate	100	mg/day	USEPA, 1991	
				CF3	Conversion Factor 3	1.0E-06	kg/mg	--	CS x IRS x CF3 x FI x EF x ED
				FI	Fraction Ingested	1	unitless	USEPA, 1991	BW x AT
				EF	Exposure Frequency	350	days/year	USEPA, 2002b	
				ED1	Exposure Duration (Age 6 - 16)	10	years	(1), USEPA, 1989, 2005	
				ED2	Exposure Duration (Age 16 - 30)	14	years	(1), USEPA, 1989, 2005	
				BW	Body Weight	70	kg	USEPA, 1989	
				AT-C	Averaging Time (Cancer)	25,550	days	USEPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	8,760	days	USEPA, 1989	
Dermal	Resident	Adult	Site 2	CS	Chemical concentration in soil	Max or 95% UCL	mg/kg	USEPA, 2002	Dermally Absorbed Dose (mg/kg/day) =
				CF3	Conversion Factor 3	1.0E-06	kg/mg	--	
				SA	Skin Surface Available for Contact	5,700	cm2	USEPA, 2004	CS x CF3 x SA x SSAF x DABS x EV x EF x ED
				SSAF	Soil to Skin Adherence Factor	0.07	mg/cm2/event	USEPA, 2004	BW x AT
				DABS	Absorption Factor	Chemical Specific	unitless	USEPA, 2004	
				EV	Events Frequency	1	events/day	USEPA, 2004	
				EF	Exposure Frequency	350	days/year	USEPA, 2002b	
				ED1	Exposure Duration (Age 6 - 16)	10	years	(1), USEPA, 1989, 2005	
				ED2	Exposure Duration (Age 16 - 30)	14	years	(1), USEPA, 1989, 2005	
				BW	Body Weight	70	kg	USEPA, 1989	
				AT-C	Averaging Time (Cancer)	25,550	days	USEPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	8,760	days	USEPA, 1989	

Notes:

1 - Adults will be evaluated as one age group (7 - 30 years) for non-mutagenic chemicals. For chemicals that act via the mutagenic mode of action, residential adults will be evaluated as two age groups, 7 - 16 years and 16 - 30 years in accordance with USEPA's Supplemental Guidance of Assessing Susceptibility from Early-Life Exposure to Carcinogens (USEPA, 2005).

Sources:

USEPA, 1989: Risk Assessment Guidance for Superfund. Vol 1: Human Health Evaluation Manual, Part A.

USEPA, 1991: Risk Assessment Guidance for Superfund - Supplemental Guidance- Standard Default Exposure Factors Interim Final.

USEPA, 2002:Calculating Upper Confidence Limits for Exposure Point Concentrations at Hazardous Waste Sites. OSWER 9285.6-10, December.

USEPA, 2002b: Supplemental Guidance for Developing Soil Screening Levels for Superfund Sites. OSWER 9355.4-24.

USEPA, 2004: Risk Assessment Guidance for Superfund (Part E, Supplemental Guidance for Dermal Risk Assessment) Final. EPA/540/R/99/005.

Unit Intake Calculations

Incidental Ingestion Intake = (IR-S x CF3 x FI x EF x ED)/(BW x AT)

Dermal Intake = (CF3 x SA x SSAF x EF x ED)/(BW x AT)

Non-Mutagenic Chemicals

Cancer Ingestion Intake (Age 6 - 30) = 4.70E-07 Cancer Dermal Intake (Age 6 - 30) = 1.87E-06

Mutagenic Chemicals

Cancer Ingestion Intake (Age 6 - 16) = 1.96E-07 Cancer Dermal Intake (Age 6 - 16) = 7.81E-07

Cancer Ingestion Intake (Age 16 - 30) = 2.74E-07 Cancer Dermal Intake (Age 16 - 30) = 1.09E-06

Noncarcinogenic Chemicals

Noncancer Ingestion Intake = 1.37E-06 Noncancer Dermal Intake = 5.47E-06

Cancer risk from ingestion = Soil concentration x Cancer Ingestion Intake x Oral Cancer Slope Factor

Cancer risk from dermal contact = Soil concentration x Cancer Dermal Intake x Absorption Factor x Dermal Cancer Slope Factor

Hazard Index from ingestion = Soil concentration x Noncancer Ingestion Intake / Oral Reference Dose

Hazard Index from dermal contact = Soil concentration x Noncancer Dermal Intake x Absorption Factor / Dermal Reference Dose

TABLE 4.16.RME

VALUES USED FOR DAILY INTAKE CALCULATIONS

REASONABLE MAXIMUM EXPOSURE - ADULT RESIDENTS - SOILS TO AIR

NWIRP CALVERTON, CALVERTON, NEW YORK

Scenario Timeframe: Future
Medium: Surface/Subsurface Soil
Exposure Medium: Air

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Inhalation	Resident	Adult	Site 2	CA	Chemical concentration in air	Calculated	mg/m3	USEPA, 2002a	Exposure Concentration (mg/m^3) =
				CS	Chemical concentration in soil	Max or 95% UCL	mg/kg	USEPA, 2002b	
				ET	Exposure Time	24	hours/day	USEPA, 1991	CA x ET x EF x ED
				EF	Exposure Frequency	350	days/year	USEPA, 2002a	AT x 24 hours/day
				ED1	Exposure Duration (Age 6 - 16)	10	years	(1), USEPA, 1989, 2005	
				ED2	Exposure Duration (Age 16 - 30)	14	years	(1), USEPA, 1989, 2005	CA = (1/PEF + 1/VF) x Cs
				AT-C	Averaging Time (Cancer)	25,550	days	USEPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	8760	days	USEPA, 1989	
				PEF	Particulate Emission Factor	1.21E+09	m3/kg	USEPA 2004	
				VF	Volatilization Factor	Chemical-specific	m3/kg	USEPA, 2002a	
				Q/C	Inverse of mean concentration at center of source	83.53	g/m2-s per kg/m3	NYSDEC 2006	

Notes:

1 - Adults will be evaluated as one age group (7 - 30 years) for non-mutagenic chemicals. For chemicals that act via the mutagenic mode of action, residential adults will be evaluated as two age groups, 7 - 16 years and 16 - 30 years in accordance with USEPA's Supplemental Guidance of Assessing Susceptibility from Early-Life Exposure to Carcinogens (USEPA, 2005).

Sources:

NYSDEC, 2006: New York State Brownfields Program, Development of Soil Cleanup Objectives, Technical Support Document.

USEPA, 1989: Risk Assessment Guidance for Superfund. Vol 1: Human Health Evaluation Manual, Part A. USEPA/540/1-86/060.

USEPA, 1991: Risk Assessment Guidance for Superfund - Supplemental Guidance- Standard Default Exposure Factors Interim Final.

USEPA, 2002a: Supplemental Guidance for Developing Soil Screening Levels for Superfund Sites. OSWER 9355.4-24.

USEPA, 2002b: Calculating Upper Confidence Limits for Exposure Point Concentrations at Hazardous Waste Sites. OSWER 9285.6-10.

Unit Intake Calculations

Unit Exposure Concentration = (ET x EF x ED)/(AT x 24 hours/day)

Non-Mutagenic Chemicals

Cancer Inhalation Intake (Age 6 - 30) = 3.29E-01

Mutagenic Chemicals

Cancer Inhalation Intake (Age 6 - 16) = 1.37E-01

Cancer Inhalation Intake (Age 16 - 30) = 1.92E-01

Noncarcinogenic Chemicals

Noncancer Inhalation Intake = 9.59E-01

Cancer risk from ingestion = Air concentration x Cancer Inhalation Intake x Inhalation Cancer Slope Factor

Hazard Index from ingestion = Air concentration x Noncancer Inhalation Intake / Inhalation Reference Dose

TABLE 4.17.RME
VALUES USED FOR DAILY INTAKE CALCULATIONS
REASONABLE MAXIMUM EXPOSURE - ADULT RESIDENTS - GROUNDWATER
NWIRP CALVERTON, CALVERTON, NEW YORK

Scenario Timeframe: Future
Medium: Groundwater
Exposure Medium: Groundwater

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Ingestion	Residents	Adult	Site 2	CGW	Chemical Concentration in Groundwater	95% UCL or Max	ug/L	USEPA, 2002	Chronic Daily Intake (CDI) (mg/kg/day) =
				CF	Conversion Factor	0.001	mg/ug	--	
				IR-GW	Ingestion Rate of Groundwater	2	L/day	USEPA, 1989	CGW x CF x IR-GW x EF x ED
				EF	Exposure Frequency	350	days/year	USEPA, 1991	BW x AT
				ED1	Exposure Duration (Age 6 - 16)	10	years	(1), USEPA, 1989, 2005	
				ED2	Exposure Duration (Age 16 - 30)	14	years	(1), USEPA, 1989, 2005	
				BW	Body Weight	70	kg	USEPA, 1989	
				AT-C	Averaging Time (Cancer)	25,550	days	USEPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	8,760	days	USEPA, 1989	
Dermal	Residents	Adult	Site 2	Daevent	Dermally Absorbed Dose per Event	Calculated	mg/cm2-event	USEPA, 2004	Dermally Absorbed Dose (mg/kg/day) =
				Cw	Chemical Concentration in Groundwater	Max or 95% UCL	mg/kg	USEPA, 2002a	DAevent x EV x EF x ED x SA
				FA	Fraction Absorbed	Chemical Specific	unitless	USEPA, 2004	BW x AT
				CF	Conversion factor	0.001	L/cm^3	- -	
				Kp	Permeability coefficient	Chemical Specific	cm/hr	USEPA, 2004	For inorganics
				τ	Lag time	Chemical Specific	hr/event	USEPA, 2004	DAevent = Kp x CW x CF x tevent
				t*	Time it takes to reach steady state	Chemical Specific	hr/event	USEPA, 2004	
				tevent	Duration of event	0.58	hr/event	USEPA, 2004	For organics if tevent <= t*
				B	Bunge model constant	Chemical Specific	unitless	USEPA, 2004	DAevent= 2 x FA x Kp x Cw x CF x sqrt[(6 x τ x tevent)/pi]
				SA	Skin Surface Available for Contact	18,000	cm2	USEPA, 2004	
				EV	Event Frequency	1	events/day	USEPA, 2004	
				EF	Exposure Frequency	350	days/year	USEPA, 1991	For organics if tevent > t*
				ED1	Exposure Duration (Age 6 - 16)	10	years	(1), USEPA, 1989, 2005	DAevent =FA x Kp x Cw x CF x [tevent/(1+B) +
				ED2	Exposure Duration (Age 16 - 30)	14	years	(1), USEPA, 1989, 2005	2 x τ +(1 + 3B + $3B^2$)/(1+B^2)
				BW	Body Weight	70	kg	USEPA, 1989	
				AT-C	Averaging Time (Cancer)	25,550	days	USEPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	8,760	days	USEPA, 1989	

Notes:

1 - Adults will be evaluated as one age group (7 - 30 years) for non-mutagenic chemicals. For chemicals that act via the mutagenic mode of action, residential adults will be evaluated as two age groups, 7 - 16 years and 16 - 30 years in accordance with USEPA's Supplemental Guidance of Assessing Susceptibility from Early-Life Exposure to Carcinogens (USEPA, 2005).

Sources:

USEPA, 1989: Risk Assessment Guidance for Superfund. Vol 1: Human Health Evaluation Manual, Part A. EPA/540/1-86/060.

USEPA, 1991: Risk Assessment Guidance for Superfund - Supplemental Guidance- Standard Default Exposure Factors Interim Final.

USEPA, 2002: Calculating Upper Confidence Limits for Exposure Point Concentrations at Hazardous Waste Sites. OSWER 9285.6-10.

USEPA, 2004: Risk Assessment Guidance for Superfund (Part E, Supplemental Guidance for Dermal Risk Assessment) Final. EPA/540/R/99/005.

Unit Intake Calculations

Ingestion Intake = (IR-GW x EF x ED)/(BW x AT)

Dermal Intake = (SA x EV x EF x ED)/(BW x AT)

Non-Mutagenic Chemicals

Cancer Ingestion Intake (Age 6 - 30) = 9.39E-06 Cancer Dermal Intake (Age 6 - 30) = 8.45E+01

Mutagenic Chemicals

Cancer Ingestion Intake (Age 6 - 16) = 3.91E-06 Cancer Dermal Intake (Age 6 - 16) = 3.52E+01

Cancer Ingestion Intake (Age 16 - 30) = 5.48E-06 Cancer Dermal Intake (Age 16 - 30) = 4.93E+01

Noncarcinogenic Chemicals

Noncancer Ingestion Intake = 2.74E-05 Noncancer Dermal Intake = 2.47E+02

Cancer risk from ingestion = Groundwater concentration x Cancer Ingestion Intake x Oral Cancer Slope Factor

Cancer risk from dermal contact = Groundwater concentration x Cancer Dermal Intake x DAevent x Dermal Cancer Slope Factor

Hazard Index from ingestion = Groundwater concentration x Noncancer Ingestion Intake / Oral Reference Dose

Hazard Index from dermal contact = Groundwater concentration x Noncancer Dermal Intake x DAevent / Dermal Reference Dose

TABLE 4.18.RME

VALUES USED FOR DAILY INTAKE CALCULATIONS

REASONABLE MAXIMUM EXPOSURE - ADULT RESIDENTS - INHALATION OF VOLATILES FROM GROUNDWATER

NWIRP CALVERTON, CALVERTON, NEW YORK

Scenario Timeframe: Current/Future
Medium: Groundwater
Exposure Medium: Air

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Inhalation	Residents	Adult	Site 2	CA	Chemical concentration in air	Calculated	mg/m3	USEPA, 1991a	Exposure Concentration (mg/m^3) =
				GW	Chemical concentration in water.	95% UCL or Max	ug/L	USEPA, 2002	
				CF	Conversion Factor	0.001	mg/ug	--	CA x ET x EF x ED
				ET	Exposure Time	24	hours/day	USEPA, 1991a	AT x 24 hours/day
				EF	Exposure Frequency	350	days/year	U.S. EPA, 1991b	
				ED1	Exposure Duration (Age 6 - 16)	10	years	(1), USEPA, 1989, 2005	CA = CW x CF x VF
				ED2	Exposure Duration (Age 16 - 30)	14	years	(1), USEPA, 1989, 2005	
				AT-C	Averaging Time (Cancer)	25550	days	USEPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	8760	days	USEPA, 1989	
				VF	Volatilization Factor	0.5	L/m3	USEPA, 1991a	

Notes:

1 - Adults will be evaluated as one age group (7 - 30 years) for non-mutagenic chemicals. For chemicals that act via the mutagenic mode of action, residential adults will be evaluated as two age groups, 7 - 16 years and 16 - 30 years in accordance with USEPA's Supplemental Guidance of Assessing Susceptibility from Early-Life Exposure to Carcinogens (USEPA, 2005).

USEPA, 1989: Risk Assessment Guidance for Superfund. Vol 1: Human Health Evaluation Manual, Part A. EPA/540/1-86/060.

USEPA, 1991a: Human Health Evaluation Manual, Part B: Development of Risk-based Preliminary Remediation Goals. OSWER Directive 9285.7-01B.

USEPA, 1991b: Risk Assessment Guidance for Superfund - Supplemental Guidance- Standard Default Exposure Factors Interim Final.

USEPA, 2002: Calculating Upper Confidence Limits for Exposure Point Concentrations at Hazardous Waste Sites. OSWER 9285.6-10.

Unit Intake Calculations

Unit Exposure Concentration = (ET x EF x ED)/(AT x 24 hours/day)

Cancer Inhalation Intake = 1.37E-04 Noncancer Inhalation Intake = 4.00E-04

Cancer risk from ingestion = Air concentration x Cancer Inhalation Intake x Inhalation Cancer Slope Factor

Hazard Index from ingestion = Air concentration x Noncancer Inhalation Intake / Inhalation Reference Dose

TABLE 4.1.CTE
VALUES USED FOR DAILY INTAKE CALCULATIONS
CENTRAL TENDENCY EXPOSURES - CONSTRUCTION WORKERS - SOILS
NWIRP CALVERTON, CALVERTON, NEW YORK

Scenario Timeframe: Current/Future
Medium: Surface Soil/Subsurface Soil
Exposure Medium: Surface/Subsurface Soil

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Ingestion	Construction Workers	Adult	Site 2	CS	Chemical concentration in soil	Max or 95% UCL	mg/kg	USEPA, 2002a	Intake (mg/kg/day) =
				IR-S	Ingestion Rate	165	mg/day	(1)	
				CF3	Conversion Factor 3	0.000001	kg/mg	--	CS x IRS x CF3 x FI x EF x ED
				FI	Fraction Ingested	1	unitless	USEPA, 2002b	BW x AT
				EF	Exposure Frequency	125	days/year	(1)	
				ED	Exposure Duration	1	years	(1)	
				BW	Body Weight	70	kg	USEPA, 2002b	
				AT-C	Averaging Time (Cancer)	25550	days	USEPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	365	days	USEPA, 1989	
Dermal	Construction Workers	Adult	Site 2	CS	Chemical concentration in soil	Max or 95% UCL	mg/kg	USEPA, 2002a	Dermally Absorbed Dose (mg/kg/day) =
				CF3	Conversion Factor 3	0.000001	kg/mg	--	
				SA	Skin Surface Available for Contact	3300	cm2	USEPA, 2002b	CS x CF3 x SA x SSAF x DABS x EV x EF x ED
				SSAF	Soil to Skin Adherence Factor	0.1	mg/cm2/event	USEPA, 2004	BW x AT
				DABS	Absorption Factor	Chemical Specific	unitless	USEPA, 2004	
				EV	Events Frequency	1	events/day	USEPA, 2004	
				EF	Exposure Frequency	125	days/year	(1)	
				ED	Exposure Duration	1	years	(1)	
				BW	Body Weight	70	kg	USEPA, 2002b	
				AT-C	Averaging Time (Cancer)	25550	days	USEPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	365	days	USEPA, 1989	

Notes:

1 - Professional judgment. For some factors, CTE is assumed to be 50 percent of RME.

Sources:

USEPA, 1989: Risk Assessment Guidance for Superfund. Vol 1: Human Health Evaluation Manual, Part A.

USEPA, 2002a:Calculating Upper Confidence Limits for Exposure Point Concentrations at Hazardous Waste Sites. OSWER 9285.6-10, December.

USEPA, 2002b: Supplemental Guidance for Developing Soil Screening Levels for Superfund Sites. OSWER 9355.4-24.

USEPA, 2004: Risk Assessment Guidance for Superfund (Part E, Supplemental Guidance for Dermal Risk Assessment) Final. EPA/540/R/99/005.

Unit Intake Calculations

Incidental Ingestion Intake = (IR-S x CF3 x FI x EF x ED)/(BW x AT)

Dermal Intake = (CF3 x SA x SSAF x EF x ED)/(BW x AT)

Cancer Ingestion Intake = 1.15E-08 Cancer Dermal Intake = 2.31E-08

Noncancer Ingestion Intake = 8.07E-07 Noncancer Dermal Intake = 1.61E-06

Cancer risk from ingestion = Soil concentration x Cancer Ingestion Intake x Oral Cancer Slope Factor

Cancer risk from dermal contact = Soil concentration x Cancer Dermal Intake x Absorption Factor x Dermal Cancer Slope Factor

Hazard Index from ingestion = Soil concentration x Noncancer Ingestion Intake / Oral Reference Dose

Hazard Index from dermal contact = Soil concentration x Noncancer Dermal Intake x Absorption Factor / Dermal Reference Dose

TABLE 4.2.CTE

VALUES USED FOR DAILY INTAKE CALCULATIONS

CENTRAL TENDENCY EXPOSURES - CONSTRUCTION WORKERS - SOILS TO AIR

NWIRP CALVERTON, CALVERTON, NEW YORK

Scenario Timeframe: Current/Future
Medium: Surface/Subsurface Soil
Exposure Medium: Air

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Inhalation	Construction Workers	Adult	Site 2	CA	Chemical concentration in air	Calculated	mg/m3	USEPA, 2002a	Exposure Concentration (mg/m^3) =
				CS	Chemical concentration in soil	Max or 95% UCL	mg/kg	USEPA, 2002b	
				ET	Exposure Time	8	hours/day	(1)	CA x ET x EF x ED
				EF	Exposure Frequency	125	days/year	(1)	AT x 24 hours/day
				ED	Exposure Duration	1	years	(1)	
				AT-C	Averaging Time (Cancer)	25550	days	USEPA, 1989	CA = (1/PEF + 1/VF) x Cs
				AT-N	Averaging Time (Non-Cancer)	365	days	USEPA, 1989	
				PEF	Particulate Emission Factor	1.40E+06	m3/kg	USEPA, 2002a	
				VF	Volatilization Factor	Chemical-specific	m3/kg	USEPA, 2002a	
				Q/C	Inverse of mean concentration at center of source	14.31	g/m2-s per kg/m3	USEPA, 2002a	

Notes:

1 - Professional judgment. For some factors, CTE is assumed to be 50 percent of RME.

Sources:

USEPA, 1989: Risk Assessment Guidance for Superfund. Vol 1: Human Health Evaluation Manual, Part A. EPA/540/1-86/060.

USEPA, 1997: Exposure Factors Handbook. USEPA/600/8-95/002FA.

USEPA, 2002a: Supplemental Guidance for Developing Soil Screening Levels for Superfund Sites. OSWER 9355.4-24.

USEPA, 2002b:Calculating Upper Confidence Limits for Exposure Point Concentrations at Hazardous Waste Sites. OSWER 9285.6-10, December.

Unit Intake Calculations

Unit Exposure Concentration = (ET x EF x ED)/(AT x 24 hours/day)

Cancer Inhalation Intake = 1.63E-03 Noncancer Inhalation Intake = 1.14E-01

Cancer risk from ingestion = Air concentration x Cancer Inhalation Intake x Inhalation Cancer Slope Factor

Hazard Index from ingestion = Air concentration x Noncancer Inhalation Intake / Inhalation Reference Dose

TABLE 4.3.CTE

VALUES USED FOR DAILY INTAKE CALCULATIONS

CENTRAL TENDENCY EXPOSURES - CONSTRUCTION WORKERS - GROUNDWATER

NWIRP CALVERTON, CALVERTON, NEW YORK

Scenario Timeframe: Current/Future
Medium: Groundwater
Exposure Medium: Groundwater

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Dermal	Construction Workers	Adult	Site 2	Daevent	Dermally Absorbed Dose per Event	Calculated	mg/cm2-event	USEPA, 2004	Dermally Absorbed Dose (mg/kg/day) =
				Cw	Chemical Concentration in Groundwater	Max or 95% UCL	mg/kg	USEPA, 2002	
				FA	Fraction Absorbed	Chemical Specific	unitless	USEPA, 2004	DAevent x EV x EF x ED x SA
				CF	Conversion factor	0.001	L/cm^3	- -	BW x AT
				Kp	Permeability coefficient	Chemical Specific	cm/hr	USEPA, 2004	
				τ	Lag time	Chemical Specific	hr/event	USEPA, 2004	For inorganics
				t*	Time it takes to reach steady state	Chemical Specific	hr/event	USEPA, 2004	DAevent = Kp x CW x CF x tevent
				tevent	Duration of event	2	hr/event	(1)	
				B	Bunge model constant	Chemical Specific	unitless	USEPA, 2004	For organics if tevent <= t*
				SA	Skin Surface Available for Contact	3300	cm2	USEPA, 2004	DAevent= 2 x FA x Kp x Cw x CF x sqrt[(6 x τ x tevent)/pi]
				EV	Event Frequency	1	events/day	(1)	
				EF	Exposure Frequency	15	days/year	(1)	For organics if tevent > t*
				ED	Exposure Duration	1	years	(1)	DAevent =FA x Kp x Cw x CF x [tevent/(1+B) +
				BW	Body Weight	70	kg	USEPA, 1989	2 x τ +(1 + 3B + $3B^2$)/(1+B^2)
				AT-C	Averaging Time (Cancer)	25550	days	USEPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	365	days	USEPA, 1989	

Notes

1 - Professional judgment. For some factors, CTE is assumed to be 50 percent of RME.

USEPA, 1989: Risk Assessment Guidance for Superfund. Vol 1: Human Health Evaluation Manual, Part A. EPA/540/1-86/060.

USEPA, 2002:Calculating Upper Confidence Limits for Exposure Point Concentrations at Hazardous Waste Sites. OSWER 9285.6-10, December.

USEPA, 2004: Risk Assessment Guidance for Superfund (Part E, Supplemental Guidance for Dermal Risk Assessment) Final. EPA/540/R/99/005.

Unit Intake Calculations

Dermal Intake = (SA x EV x EF x ED)/(BW x AT)

Cancer Dermal Intake = 2.77E-02 Noncancer Dermal Intake = 1.94E+00

Cancer risk from dermal contact = Groundwater concentration x Cancer Dermal Intake x DAevent x Dermal Cancer Slope Factor

TABLE 4.4.CTE

VALUES USED FOR DAILY INTAKE CALCULATIONS

CENTRAL TENDENCY EXPOSURES - CONSTRUCTION WORKERS - GROUNDWATER TO AIR

NWIRP CALVERTON, CALVERTON, NEW YORK

Scenario Timeframe: Current/Future
Medium: Groundwater
Exposure Medium: Air

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Inhalation	Construction Workers	Adult	Site 2	CA	Chemical concentration in air	Calculated	mg/m3	VDEQ, 2012	Exposure Concentration (mg/m^3) =
				CW	Chemical concentration in water.	Average	ug/L	--	
				CF	Conversion Factor	0.001	mg/ug	--	CA x ET x EF x ED
				ET	Exposure Time	2	hours/day	(1)	AT x 24 hours/day
				EF	Exposure Frequency	15	days/year	(1)	
				ED	Exposure Duration	1	years	(1)	CA = CW x CF x VF
				AT-C	Averaging Time (Cancer)	25550	days	USEPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	365	days	USEPA, 1989	
				VF	Volatilization Factor	Calculated	(mg/m3)/(mg/L)	VDEQ, 2012	

Notes:

1 - Professional judgment. For some factors, CTE is assumed to be 50 percent of RME.

USEPA, 1989: Risk Assessment Guidance for Superfund. Vol 1: Human Health Evaluation Manual, Part A. EPA/540/1-86/060.

VDEQ, 2012: Virginia Department of Environmental Quality (VDEQ, online- http://www.deq.state.va.us/vrprisk/homepage.html).

Unit Intake Calculations

Unit Exposure Concentration = (ET x EF x ED)/(AT x 24 hours/day)

Cancer Inhalation Intake = 4.89E-08 Noncancer Inhalation Intake = 3.42E-06

Cancer risk from ingestion = Air concentration x Cancer Inhalation Intake x Inhalation Cancer Slope Factor

Hazard Index from ingestion = Air concentration x Noncancer Inhalation Intake / Inhalation Reference Dose

TABLE 4.5.CTE
VALUES USED FOR DAILY INTAKE CALCULATIONS
CENTRAL TENDENCY EXPOSURES - INDUSTRIAL WORKERS - SOIL
NWIRP CALVERTON, CALVERTON, NEW YORK

Scenario Timeframe: Current/Future
Medium: Surface Soil/Subsurface Soil
Exposure Medium: Surface/Subsurface Soil

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Ingestion	Industrial Workers	Adult	Site 2	CS	Chemical concentration in soil	Max or 95% UCL	mg/kg	USEPA, 2002	Intake (mg/kg/day) =
				IR-S	Ingestion Rate	50	mg/day	USEPA, 1993	
				CF3	Conversion Factor 3	0.000001	kg/mg	--	CS x IRS x CF3 x FI x EF x ED
				FI	Fraction Ingested	1	unitless	USEPA, 1993	BW x AT
				EF	Exposure Frequency	219	days/year	USEPA, 1993	
				ED	Exposure Duration	9	years	USEPA, 1993	
				BW	Body Weight	70	kg	USEPA, 1989	
				AT-C	Averaging Time (Cancer)	25550	days	USEPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	3285	days	USEPA, 1989	
Dermal	Industrial Workers	Adult	Site 2	CS	Chemical concentration in soil	Max or 95% UCL	mg/kg	USEPA, 2002	Dermally Absorbed Dose (mg/kg/day) =
				CF3	Conversion Factor 3	0.000001	kg/mg	--	
				SA	Skin Surface Available for Contact	3300	cm2	USEPA, 2004	CS x CF3 x SA x SSAF x DABS x EV x EF x ED
				SSAF	Soil to Skin Adherence Factor	0.02	mg/cm2/event	USEPA, 2004	BW x AT
				DABS	Absorption Factor	Chemical Specific	unitless	USEPA, 2004	
				EV	Events Frequency	1	events/day	USEPA, 2004	
				EF	Exposure Frequency	219	days/year	USEPA, 1993	
				ED	Exposure Duration	9	years	USEPA, 1993	
				BW	Body Weight	70	kg	USEPA, 1989	
				AT-C	Averaging Time (Cancer)	25550	days	USEPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	3285	days	USEPA, 1989	

Sources:

USEPA, 1989: Risk Assessment Guidance for Superfund. Vol 1: Human Health Evaluation Manual, Part A.

USEPA, 1993: Superfund's Standard Default Exposure Factors for the Central Tendency and Reasonable Maximum Exposure.

USEPA, 2002: Calculating Upper Confidence Limits for Exposure Point Concentrations at Hazardous Waste Sites. OSWER 9285.6-10, December.

USEPA, 2004: Risk Assessment Guidance for Superfund (Part E, Supplemental Guidance for Dermal Risk Assessment) Final. EPA/540/R/99/005.

Unit Intake Calculations

Incidental Ingestion Intake = (IR-S x CF3 x FI x EF x ED)/(BW x AT)

Dermal Intake = (CF3 x SA x SSAF x EF x ED)/(BW x AT)

Cancer Ingestion Intake = 5.51E-08 Cancer Dermal Intake = 7.27E-08

Noncancer Ingestion Intake = 4.29E-07 Noncancer Dermal Intake = 5.66E-07

Cancer risk from ingestion = Soil concentration x Cancer Ingestion Intake x Oral Cancer Slope Factor

Cancer risk from dermal contact = Soil concentration x Cancer Dermal Intake x Absorption Factor x Dermal Cancer Slope Factor

Hazard Index from ingestion = Soil concentration x Noncancer Ingestion Intake / Oral Reference Dose

Hazard Index from dermal contact = Soil concentration x Noncancer Dermal Intake x Absorption Factor / Dermal Reference Dose

TABLE 4.6.CTE
VALUES USED FOR DAILY INTAKE CALCULATIONS
CENTRAL TENDENCY EXPOSURES - INDUSTRIAL WORKERS - SOIL TO AIR
NWIRP CALVERTON, CALVERTON, NEW YORK

Scenario Timeframe: Current/Future
Medium: Surface/Subsurface Soil
Exposure Medium: Air

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Inhalation	Industrial Workers	Adult	Site 2	CA	Chemical concentration in air	Calculated	mg/m3	USEPA, 2002a	Exposure Concentration (mg/m^3) =
				CS	Chemical concentration in soil	Max or 95% UCL	mg/kg	USEPA, 2002b	
				ET	Exposure Time	8	hours/day	(1)	CA x ET x EF x ED
				EF	Exposure Frequency	219	days/year	USEPA, 2002a	AT x 24 hours/day
				ED	Exposure Duration	9	years	USEPA, 1993	
				AT-C	Averaging Time (Cancer)	25550	days	USEPA, 1989	CA = (1/PEF + 1/VF) x Cs
				AT-N	Averaging Time (Non-Cancer)	3285	days	USEPA, 1989	
				PEF	Particulate Emission Factor	1.21E+09	m3/kg	NYSDEC, 2006	
				VF	Volatilization Factor	Chemical-specific	m3/kg	USEPA, 2002a	
				Q/C	Inverse of mean concentration at center of source	83.53	g/m2-s per kg/m3	NYSDEC, 2006	

Notes:

1 - Length of typical work day.

Sources:

NYSDEC, 2006: New York State Brownfields Program, Development of Soil Cleanup Objectives, Technical Support Document.

USEPA, 1989: Risk Assessment Guidance for Superfund. Vol 1: Human Health Evaluation Manual, Part A. USEPA/540/1-86/060.

USEPA, 1993: Superfund Standard Default Exposure Factors for the Central Tendency and Reasonable Maximum Exposure.

USEPA, 2002a: Supplemental Guidance for Developing Soil Screening Levels for Superfund Sites. OSWER 9355.4-24.

USEPA, 2002b:Calculating Upper Confidence Limits for Exposure Point Concentrations at Hazardous Waste Sites. OSWER 9285.6-10, December.

Unit Intake Calculations

Unit Exposure Concentration = (ET x EF x ED)/(AT x 24 hours/day)

Cancer Inhalation Intake = 2.57E-02 Noncancer Inhalation Intake = 2.00E-01

Cancer risk from ingestion = Air concentration x Cancer Inhalation Intake x Inhalation Cancer Slope Factor

Hazard Index from ingestion = Air concentration x Noncancer Inhalation Intake / Inhalation Reference Dose

TABLE 4.7.CTE
VALUES USED FOR DAILY INTAKE CALCULATIONS
CENTRAL TENDENCY EXPOSURES - CHILD RECREATIONAL USERS - SOILS
NWIRP CALVERTON, CALVERTON, NEW YORK

Scenario Timeframe: Current/Future
Medium: Surface Soil/Subsurface Soil
Exposure Medium: Surface/Subsurface Soil

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Ingestion	Recreational User	Child	Site 2	CS	Chemical concentration in soil	Max or 95% UCL	mg/kg	USEPA, 2002	Intake (mg/kg/day) =
				IR-S	Ingestion Rate	100	mg/day	USEPA, 1993	
				CF3	Conversion Factor 3	0.000001	kg/mg	--	CSs x IRS x CF3 x FI x EF x ED
				FI	Fraction Ingested	0.5	unitless	(1)	BW x AT
				EF	Exposure Frequency	26	days/year	(2)	
				ED1	Exposure Duration (Age 0 - 2)	2	years	USEPA, 1989	
				ED2	Exposure Duration (Age 2 - 6)	4	years	USEPA, 1989	
				BW	Body Weight	15	kg	USEPA, 1989	
				AT-C	Averaging Time (Cancer)	25550	days	USEPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	2190	days	USEPA, 1989	
Dermal	Recreational User	Child	Site 2	CS	Chemical concentration in soil	Max or 95% UCL	mg/kg	USEPA, 2002	Dermally Absorbed Dose (mg/kg/day) =
				CF3	Conversion Factor 3	0.000001	kg/mg	--	
				SA	Skin Surface Available for Contact	2,800	cm2	USEPA, 2004	CS x CF3 x SA x SSAF x DABS x EV x EF x ED
				SSAF	Soil to Skin Adherence Factor	0.04	mg/cm2/event	USEPA, 2004	BW x AT
				DABS	Absorption Factor	Chemical Specific	unitless	USEPA, 2004	
				EV	Events Frequency	1	events/day	USEPA, 2004	
				EF	Exposure Frequency	26	days/year	(2)	
				ED1	Exposure Duration (Age 0 - 2)	2	years	USEPA, 1989	
				ED2	Exposure Duration (Age 2 - 6)	4	years	USEPA, 1989	
				BW	Body Weight	15	kg	USEPA, 1989	
				AT-C	Averaging Time (Cancer)	25550	days	USEPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	2190	days	USEPA, 1989	

Notes:

1 - The child recreational user is assumed to be at the site only a portion of the day.

2 - Assume two days a week in warm weather months for reasonable maximum exposure and one day a week for central tendency exposure.

3 - Children will be evaluated as one age group (0 - 6 years) for non-mutagenic chemicals. For chemicals that act via the mutagenic mode of action, children recreational users will be evaluated as two age groups, 0 - 2 years and 2 - 6 years in accordance with USEPA's Supplemental Guidance of Assessing Susceptibility from Early-Life Exposure to Carcinogens (USEPA, 2005).

Sources:

USEPA, 1989: Risk Assessment Guidance for Superfund. Vol 1: Human Health Evaluation Manual, Part A. EPA/540/1-86/060.

USEPA, 1993: Superfund's Standard Default Exposure Factors for the Central Tendency and Reasonable Maximum Exposure.

USEPA, 2002: Calculating Upper Confidence Limits for Exposure Point Concentrations at Hazardous Waste Sites. OSWER 9285.6-10, December.

USEPA, 2004: Risk Assessment Guidance for Superfund (Part E, Supplemental Guidance for Dermal Risk Assessment) Final. EPA/540/R/99/005.

Unit Intake Calculations

Incidental Ingestion Intake = (IR-S x CF3 x FI x EF x ED)/(BW x AT)

Dermal Intake = (CF3 x SA x SSAF x EF x ED)/(BW x AT)

Non-Mutagenic Chemicals

Cancer Ingestion Intake = 2.04E-08 Cancer Dermal Intake = 4.56E-08

Mutagenic Chemicals

Cancer Ingestion Intake (Age 0 - 2) = 6.78E-09 Cancer Dermal Intake (Age 0 - 2) = 1.52E-08

Cancer Ingestion Intake (Age 2 - 6) = 1.36E-08 Cancer Dermal Intake (Age 2 - 6) = 3.04E-08

Noncarcinogenic Chemicals

Noncancer Ingestion Intake = 2.37E-07 Noncancer Dermal Intake = 5.32E-07

Cancer risk from ingestion = Soil concentration x Cancer Ingestion Intake x Oral Cancer Slope Factor

Cancer risk from dermal contact = Soil concentration x Cancer Dermal Intake x Absorption Factor x Dermal Cancer Slope Factor

Hazard Index from ingestion = Soil concentration x Noncancer Ingestion Intake / Oral Reference Dose

Hazard Index from dermal contact = Soil concentration x Noncancer Dermal Intake x Absorption Factor / Dermal Reference Dose

TABLE 4.8.CTE

VALUES USED FOR DAILY INTAKE CALCULATIONS

CENTRAL TENDENCY EXPOSURES - CHILD RECREATIONAL USERS - SOILS TO AIR

NWIRP CALVERTON, CALVERTON, NEW YORK

Scenario Timeframe: Current/Future
Medium: Surface/Subsurface Soil
Exposure Medium: Air

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Inhalation	Recreational User	Child	Site 2	CA	Chemical concentration in air	Calculated	mg/m3	USEPA, 2002a	Exposure Concentration (mg/m^3) =
				CS	Chemical concentration in soil	Max or 95% UCL	mg/kg	USEPA, 2002b	
				ET	Exposure Time	2	hours/day	(1)	CA x ET x EF x ED
				EF	Exposure Frequency	26	days/year	(2)	AT x 24 hours/day
				ED1	Exposure Duration (Age 0 - 2)	2	years	(3), USEPA, 1989, 2005	
				ED2	Exposure Duration (Age 2 - 6)	4	years	(3), USEPA, 1989, 2005	
				AT-C	Averaging Time (Cancer)	25,550	days	USEPA, 1989	CA = (1/PEF + 1/VF) x Cs
				AT-N	Averaging Time (Non-Cancer)	2,190	days	USEPA, 1989	
				PEF	Particulate Emission Factor	1.21E+06	m3/kg	NYSDEC, 2006	
				VF	Volatilization Factor	Chemical-specific	m3/kg	USEPA, 2002a	
				Q/C	Inverse of mean concentration at center of source	83.53	g/m2-s per kg/m3	NYSDEC, 2006	

Notes:

1 - Professional judgment.

2 - Assume two days a week in warm weather months for reasonable maximum exposure and one day a week for central tendency exposure.

3 - Children will be evaluated as one age group (0 - 6 years) for non-mutagenic chemicals. For chemicals that act via the mutagenic mode of action, children recreational users will be evaluated as two age groups, 0 - 2 years and 2 - 6 years in accordance with USEPA's Supplemental Guidance of Assessing Susceptibility from Early-Life Exposure to Carcinogens (USEPA, 2005).

Sources:

NYSDEC, 2006: New York State Brownfields Program, Development of Soil Cleanup Objectives, Technical Support Document.

USEPA, 1989: Risk Assessment Guidance for Superfund. Vol 1: Human Health Evaluation Manual, Part A. USEPA/540/1-86/060.

USEPA, 2002a: Supplemental Guidance for Developing Soil Screening Levels for Superfund Sites. OSWER 9355.4-24.

USEPA, 2002b: Calculating Upper Confidence Limits for Exposure Point Concentrations at Hazardous Waste Sites. OSWER 9285.6-10, December.

Unit Intake Calculations

Unit Exposure Concentration = (ET x EF x ED)/(AT x 24 hours/day)

Non-Mutagenic Chemicals

Cancer Inhalation Intake = 5.09E-04 Noncancer Inhalation Intake = 5.94E-03

Mutagenic Chemicals

Cancer Inhalation Intake (Age 0 - 2) = 1.70E-04

Cancer Inhalation Intake (Age 2 - 6) = 3.39E-04

Cancer risk from ingestion = Air concentration x Cancer Inhalation Intake x Inhalation Cancer Slope Factor

Hazard Index from ingestion = Air concentration x Noncancer Inhalation Intake / Inhalation Reference Dose

TABLE 4.9.CTE
VALUES USED FOR DAILY INTAKE CALCULATIONS
CENTRAL TENDENCY EXPOSURES - ADULT RECREATIONAL USERS - SOILS
NWIRP CALVERTON, CALVERTON, NEW YORK

Scenario Timeframe: Current/Future
Medium: Surface Soil/Subsurface Soil
Exposure Medium: Surface/Subsurface Soil

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Ingestion	Recreational User	Adult	Site 2	CS	Chemical concentration in soil	Max or 95% UCL	mg/kg	USEPA, 2002	Intake (mg/kg/day) =
				IR-S	Ingestion Rate	50	mg/day	USEPA, 1993	
				CF3	Conversion Factor 3	1.0E-06	kg/mg	--	CS x IRS x CF3 x FI x EF x ED
				FI	Fraction Ingested	0.5	unitless	(1)	BW x AT
				EF	Exposure Frequency	26	days/year	(1)	
				ED1	Exposure Duration (Age 6 - 16)	10	years	(3), USEPA, 1989, 2005	
				ED2	Exposure Duration (Age 16 - 30)	14	years	(3), USEPA, 1989, 2005	
				BW	Body Weight	70	kg	USEPA, 1989	
				AT-C	Averaging Time (Cancer)	25,550	days	USEPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	8,760	days	USEPA, 1989	
Dermal	Recreational User	Adult	Site 2	CS	Chemical concentration in soil	Max or 95% UCL	mg/kg	USEPA, 2002	Dermally Absorbed Dose (mg/kg/day) =
				CF3	Conversion Factor 3	1.0E-06	kg/mg	--	
				SA	Skin Surface Available for Contact	5,700	cm2	USEPA, 2004	CS x CF3 x SA x SSAF x DABS x EV x EF x ED
				SSAF	Soil to Skin Adherence Factor	0.01	mg/cm2/event	USEPA, 2004	BW x AT
				DABS	Absorption Factor	Chemical Specific	unitless	USEPA, 2004	
				EV	Events Frequency	1	events/day	USEPA, 2004	
				EF	Exposure Frequency	26	days/year	(1)	
				ED1	Exposure Duration (Age 6 - 16)	10	years	(3), USEPA, 1989, 2005	
				ED2	Exposure Duration (Age 16 - 30)	14	years	(3), USEPA, 1989, 2005	
				BW	Body Weight	70	kg	USEPA, 1989	
				AT-C	Averaging Time (Cancer)	25,550	days	USEPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	8,760	days	USEPA, 1989	

Notes:

1 - The adult recreational user is assumed to be at the site only a portion of the day.

2 - Assume two days a week in warm weather months for reasonable maximum exposure and one day a week for central tendency exposure.

3 - Adults will be evaluated as one age group (7 - 30 years) for non-mutagenic chemicals. For chemicals that act via the mutagenic mode of action, adult recreational users will be evaluated as two age groups, 7 - 16 years and 16 - 30 years in accordance with USEPA's Supplemental Guidance of Assessing Susceptibility from Early-Life Exposure to Carcinogens (USEPA, 2005).

Sources:

USEPA, 1989: Risk Assessment Guidance for Superfund. Vol 1: Human Health Evaluation Manual, Part A. EPA/540/1-86/060.

USEPA, 1993: Superfund Standard Default Exposure Factors for the Central Tendency and Reasonable Maximum Exposure.

USEPA, 2002: Calculating Upper Confidence Limits for Exposure Point Concentrations at Hazardous Waste Sites. OSWER 9285.6-10, December.

USEPA, 2004: Risk Assessment Guidance for Superfund (Part E, Supplemental Guidance for Dermal Risk Assessment) Final. EPA/540/R/99/005.

Unit Intake Calculations

Incidental Ingestion Intake = (IR-S x CF3 x FI x EF x ED)/(BW x AT)

Dermal Intake = (CF3 x SA x SSAF x EF x ED)/(BW x AT)

Non-Mutagenic Chemicals

Cancer Ingestion Intake = 8.72E-09 Cancer Dermal Intake = 1.99E-08

Mutagenic Chemicals

Cancer Ingestion Intake (Age 6 - 16) = 3.63E-09 Cancer Dermal Intake (Age 6 - 16) = 8.29E-09

Cancer Ingestion Intake Age 16 - 30) = 5.09E-09 Cancer Dermal Intake (Age 16 - 30) = 1.16E-08

Noncarcinogenic Chemicals

Noncancer Ingestion Intake = 2.54E-08 Noncancer Dermal Intake = 5.80E-08

Cancer risk from ingestion = Soil concentration x Cancer Ingestion Intake x Oral Cancer Slope Factor

Cancer risk from dermal contact = Soil concentration x Cancer Dermal Intake x Absorption Factor x Dermal Cancer Slope Factor

Hazard Index from ingestion = Soil concentration x Noncancer Ingestion Intake / Oral Reference Dose

Hazard Index from dermal contact = Soil concentration x Noncancer Dermal Intake x Absorption Factor / Dermal Reference Dose

TABLE 4.10.CTE
VALUES USED FOR DAILY INTAKE CALCULATIONS
CENTRAL TENDENCY EXPOSURES - ADULT RECREATIONAL USERS - SOILS TO AIR
NWIRP CALVERTON, CALVERTON, NEW YORK

Scenario Timeframe: Current/Future
Medium: Surface/Subsurface Soil
Exposure Medium: Air

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Inhalation	Recreational User	Adult	Site 2	CA	Chemical concentration in air	Calculated	mg/m3	USEPA, 2002a	Exposure Concentration (mg/m^3) =
				CS	Chemical concentration in soil	Max or 95% UCL	mg/kg	USEPA, 2002b	
				ET	Exposure Time	2	hours/day	(1)	CA x ET x EF x ED
				EF	Exposure Frequency	26	days/year	(2)	AT x 24 hours/day
				ED1	Exposure Duration (Age 6 - 16)	10	years	(3), USEPA, 1989, 2005	
				ED2	Exposure Duration (Age 16 - 30)	14	years	(3), USEPA, 1989, 2005	
				AT-C	Averaging Time (Cancer)	25,550	days	USEPA, 1989	CA = (1/PEF + 1/VF) x Cs
				AT-N	Averaging Time (Non-Cancer)	8760	days	USEPA, 1989	
				PEF	Particulate Emission Factor	1.21E+09	m3/kg	NYSDEC, 2006	
				VF	Volatilization Factor	Chemical-specific	m3/kg	USEPA, 2002a	
				Q/C	Inverse of mean concentration at center of source	83.53	g/m2-s per kg/m3	NYSDEC, 2006	

Notes:

1 - Professional judgment.

2 - Assume two days a week in warm weather months for reasonable maximum exposure and one day a week for central tendency exposure.

3 - Adults will be evaluated as one age group (7 - 30 years) for non-mutagenic chemicals. For chemicals that act via the mutagenic mode of action, adult recreational users will be evaluated as two age groups, 7 - 16 years and 16 - 30 years in accordance with USEPA's Supplemental Guidance of Assessing Susceptibility from Early-Life Exposure to Carcinogens (USEPA, 2005).

Sources:

NYSDEC, 2006: New York State Brownfields Program, Development of Soil Cleanup Objectives, Technical Support Document.

USEPA, 1989: Risk Assessment Guidance for Superfund. Vol 1: Human Health Evaluation Manual, Part A. USEPA/540/1-86/060.

USEPA, 2002a: Supplemental Guidance for Developing Soil Screening Levels for Superfund Sites. OSWER 9355.4-24.

USEPA, 2002b: Calculating Upper Confidence Limits for Exposure Point Concentrations at Hazardous Waste Sites. OSWER 9285.6-10, December.

Unit Intake Calculations

Unit Exposure Concentration = (ET x EF x ED)/(AT x 24 hours/day)

Non-Mutagenic Chemicals

Cancer Inhalation Intake = 2.04E-03

Noncarcinogenic Chemicals

Noncancer Inhalation Intake = 5.94E-03

Mutagenic Chemicals

Cancer Inhalation Intake (Age 6 - 16) = 8.48E-04

Cancer Inhalation Intake (Age 16 - 30) = 1.19E-03

Cancer risk from ingestion = Air concentration x Cancer Inhalation Intake x Inhalation Cancer Slope Factor

Hazard Index from ingestion = Air concentration x Noncancer Inhalation Intake / Inhalation Reference Dose

TABLE 4.11.CTE
VALUES USED FOR DAILY INTAKE CALCULATIONS
CENTRAL TENDENCY EXPOSURES - CHILD RESIDENTS - SOILS
NWIRP CALVERTON, CALVERTON, NEW YORK

Scenario Timeframe: Future
Medium: Surface Soil/Subsurface Soil
Exposure Medium: Surface/Subsurface Soil

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Ingestion	Resident	Child	Site 2	CS	Chemical concentration in soil	Max or 95% UCL	mg/kg	USEPA, 2002	Intake (mg/kg/day) =
				IR-S	Ingestion Rate	100	mg/day	USEPA, 1993	
				CF3	Conversion Factor 3	1.0E-06	kg/mg	--	CS x IRS x CF3 x FI x EF x ED
				FI	Fraction Ingested	1	unitless	USEPA, 1993	BW x AT
				EF	Exposure Frequency	234	days/year	USEPA, 1993	
				ED1	Exposure Duration (Age 0 - 2)	1	years	(1), USEPA, 1989, 2005	
				ED2	Exposure Duration (Age 2 - 6)	1	years	(1), USEPA, 1989, 2005	
				BW	Body Weight	15	kg	USEPA, 1989	
				AT-C	Averaging Time (Cancer)	25,550	days	USEPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	730	days	USEPA, 1989	
Dermal	Resident	Child	Site 2	CS	Chemical concentration in soil	Max or 95% UCL	mg/kg	USEPA, 2002	Dermally Absorbed Dose (mg/kg/day) =
				CF3	Conversion Factor 3	1E-06	kg/mg	--	
				SA	Skin Surface Available for Contact	2,800	cm2	USEPA, 2004	CS x CF3 x SA x SSAF x DABS x EV x EF x ED
				SSAF	Soil to Skin Adherence Factor	0.04	mg/cm2/event	USEPA, 2004	BW x AT
				DABS	Absorption Factor	Chemical Specific	unitless	USEPA, 2004	
				EV	Events Frequency	1	events/day	USEPA, 2004	
				EF	Exposure Frequency	234	days/year	USEPA, 1993	
				ED1	Exposure Duration (Age 0 - 2)	1	years	(1), USEPA, 1989, 2005	
				ED2	Exposure Duration (Age 2 - 6)	1	years	(1), USEPA, 1989, 2005	
				BW	Body Weight	15	kg	USEPA, 1989	
				AT-C	Averaging Time (Cancer)	25,550	days	USEPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	730	days	USEPA, 1989	

Notes:

1 - Children will be evaluated as one age group (0 - 6 years) for non-mutagenic chemicals. For chemicals that act via the mutagenic mode of action, residential children will be evaluated as two age groups, 0 - 2 years and 2 - 6 years in accordance with USEPA's Supplemental Guidance of Assessing Susceptibility from Early-Life Exposure to Carcinogens (USEPA, 2005).

Sources:

USEPA, 1989: Risk Assessment Guidance for Superfund. Vol 1: Human Health Evaluation Manual, Part A. EPA/540/1-86/060.

USEPA, 1993: Superfund Standard Default Exposure Factors for the Central Tendency and Reasonable Maximum Exposure.

USEPA, 2002. Calculating Upper Confidence Limits for Exposure Point Concentrations at Hazardous Waste Sites. OSWER 9285.6-10, December.

USEPA, 2004: Risk Assessment Guidance for Superfund (Part E, Supplemental Guidance for Dermal Risk Assessment) Final. EPA/540/R/99/005.

Unit Intake Calculations

Incidental Ingestion Intake = (IR-S x CF3 x FI x EF x ED)/(BW x AT)

Dermal Intake = (CF3 x SA x SSAF x EF x ED)/(BW x AT)

Non-Mutagenic Chemicals

Cancer Ingestion Intake = 1.22E-07 Cancer Dermal Intake = 1.37E-07

Mutagenic Chemicals

Cancer Ingestion Intake (Age 0 - 2) = 6.11E-08 Cancer Dermal Intake (Age 0 - 2) = 6.84E-08

Cancer Ingestion Intake (Age 2 - 6) = 6.11E-08 Cancer Dermal Intake (Age 2 - 6) = 6.84E-08

Noncarcinogenic Chemicals

Noncancer Ingestion Intake = 4.27E-06 Noncancer Dermal Intake = 4.79E-06

Cancer risk from ingestion = Soil concentration x Cancer Ingestion Intake x Oral Cancer Slope Factor

Cancer risk from dermal contact = Soil concentration x Cancer Dermal Intake x Absorption Factor x Dermal Cancer Slope Factor

Hazard Index from ingestion = Soil concentration x Noncancer Ingestion Intake / Oral Reference Dose

Hazard Index from dermal contact = Soil concentration x Noncancer Dermal Intake x Absorption Factor / Dermal Reference Dose

TABLE 4.12.CTE
VALUES USED FOR DAILY INTAKE CALCULATIONS
CENTRAL TENDENCY EXPOSURES - CHILD RESIDENTS - SOILS TO AIR
NWIRP CALVERTON, CALVERTON, NEW YORK

Scenario Timeframe: Future
Medium: Surface/Subsurface Soil
Exposure Medium: Air

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Inhalation	Resident	Child	Site 2	CA	Chemical concentration in air	Calculated	mg/m3	USEPA, 2002a	Exposure Concentration (mg/m^3) =
				CS	Chemical concentration in soil	Max or 95% UCL	mg/kg	USEPA, 2002b	
				ET	Exposure Time	24	hours/day	USEPA, 1993	CA x ET x EF x ED
				EF	Exposure Frequency	234	days/year	USEPA, 1993	AT x 24 hours/day
				ED1	Exposure Duration (Age 0 - 2)	1	years	(1), USEPA, 1989, 2005	
				ED2	Exposure Duration (Age 2 - 6)	1	years	(1), USEPA, 1989, 2005	
				AT-C	Averaging Time (Cancer)	25,550	days	USEPA, 1989	CA = (1/PEF + 1/VF) x Cs
				AT-N	Averaging Time (Non-Cancer)	730	days	USEPA, 1989	
				PEF	Particulate Emission Factor	1.21E+09	m3/kg	NYSDEC, 2006	
				VF	Volatilization Factor	Chemical-specific	m3/kg	USEPA, 2002a	
				Q/C	Inverse of mean concentration at center of source	83.53	g/m2-s per kg/m3	NYSDEC, 2006	

Notes:

1 - Children will be evaluated as one age group (0 - 6 years) for non-mutagenic chemicals. For chemicals that act via the mutagenic mode of action, residential children will be evaluated as two age groups, 0 - 2 years and 2 - 6 years in accordance with USEPA's Supplemental Guidance of Assessing Susceptibility from Early-Life Exposure to Carcinogens (USEPA, 2005).

Sources:

NYSDEC, 2006: New York State Brownfields Program, Development of Soil Cleanup Objectives, Technical Support Document.

USEPA, 1989: Risk Assessment Guidance for Superfund. Vol 1: Human Health Evaluation Manual, Part A. USEPA/540/1-86/060.

USEPA, 1993: Superfund Standard Default Exposure Factors for the Central Tendency and Reasonable Maximum Exposure.

USEPA, 2002a: Supplemental Guidance for Developing Soil Screening Levels for Superfund Sites. OSWER 9355.4-24.

USEPA, 2002b: Calculating Upper Confidence Limits for Exposure Point Concentrations at Hazardous Waste Sites. OSWER 9285.6-10, December.

Unit Intake Calculations

Unit Exposure Concentration = (ET x EF x ED)/(AT x 24 hours/day)

Non-Mutagenic Chemicals

Cancer Inhalation Intake = 1.83E-02

Noncarcinogenic Chemicals

Noncancer Inhalation Intake = 6.41E-01

Mutagenic Chemicals

Cancer Inhalation Intake (Age 0 - 2) = 9.16E-03

Cancer Inhalation Intake (Age 2 - 6) = 9.16E-03

Cancer risk from ingestion = Air concentration x Cancer Inhalation Intake x Inhalation Cancer Slope Factor

Hazard Index from ingestion = Air concentration x Noncancer Inhalation Intake / Inhalation Reference Dose

TABLE 4.13.CTE
VALUES USED FOR DAILY INTAKE CALCULATIONS
CENTRAL TENDENCY EXPOSURES - CHILD RESIDENTS - GROUNDWATER
NWIRP CALVERTON, CALVERTON, NEW YORK

Scenario Timeframe: Future
Medium: Groundwater
Exposure Medium: Groundwater

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Ingestion	Residents	Child	Site 2	CGW	Chemical Concentration in Groundwater	Max or 95% UCL	mg/kg	USEPA, 2002	Chronic Daily Intake (CDI) (mg/kg/day) =
				CF	Conversion Factor	0.001	mg/ug	--	
				IR-GW	Ingestion Rate of Groundwater	0.66	L/day	USEPA, 1997	CGW x CF x IR-GW x EF x ED
				EF	Exposure Frequency	234	days/year	USEPA, 1993	BW x AT
				ED1	Exposure Duration (Age 0 - 2)	2	years	(1), USEPA, 1989, 2005	
				ED2	Exposure Duration (Age 2 - 6)	4	years	(1), USEPA, 1989, 2005	
				BW	Body Weight	15	kg	USEPA, 1993	
				AT-C	Averaging Time (Cancer)	25,550	days	USEPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	2,190	days	USEPA, 1989	
Dermal	Residents	Child	Site 2	Daevent	Dermally Absorbed Dose per Event	Calculated	mg/cm2-event	USEPA, 2004	Dermally Absorbed Dose (mg/kg/day) =
				Cw	Chemical Concentration in Groundwater	Max or 95% UCL	mg/kg	USEPA, 2002a	
				FA	Fraction Absorbed	Chemical Specific	unitless	USEPA, 2004	DAevent x EV x EF x ED x SA
				CF	Conversion factor	0.001	L/cm^3	- -	BW x AT
				Kp	Permeability coefficient	Chemical Specific	cm/hr	USEPA, 2004	
				τ	Lag time	Chemical Specific	hr/event	USEPA, 2004	For Inorganics
				t^*	Time it takes to reach steady state	Chemical Specific	hr/event	USEPA, 2004	DAevent = Kp x CW x CF x tevent
				tevent	Duration of event	0.33	hr/event	USEPA, 1997	
				B	Bunge model constant	Chemical Specific	unitless	USEPA, 2004	For organics if tevent <= t*
				SA	Skin Surface Available for Contact	6,600	cm2	USEPA, 2004	DAevent= 2 x FA x Kp x Cw x CF x sqrt{(6 x τ x tevent)/pi}
				EV	Event Frequency	1	events/day	USEPA, 2004	
				EF	Exposure Frequency	234	days/year	USEPA, 1993	For organics if tevent > t*
				ED1	Exposure Duration (Age 0 - 2)	2	years	(1), USEPA, 1989, 2005	DAevent =FA x Kp x Cw x CF x [tevent/(1+B) +
				ED2	Exposure Duration (Age 2 - 6)	4	years	(1), USEPA, 1989, 2005	
				BW	Body Weight	15	kg	USEPA, 1993	2 x τ +(1 + 3B + $3B^2$)/(1+B^2)
				AT-C	Averaging Time (Cancer)	25,550	days	USEPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	2,190	days	USEPA, 1989	

Notes:

1 - Children will be evaluated as one age group (0 - 6 years) for non-mutagenic chemicals. For chemicals that act via the mutagenic mode of action, residential children will be evaluated as two age groups, 0 - 2 years and 2 - 6 years in accordance with USEPA's Supplemental Guidance of Assessing Susceptibility from Early-Life Exposure to Carcinogens (USEPA, 2005).

Sources:

USEPA, 1989: Risk Assessment Guidance for Superfund. Vol 1: Human Health Evaluation Manual, Part A. EPA/540/1-86/060.

USEPA, 1993: Superfund Standard Default Exposure Factors for the Central Tendency and Reasonable Maximum Exposure.

USEPA, 1997: Exposure Factors Handbook. EPA/600/P-95/002Fa

USEPA, 2002: Calculating Upper Confidence Limits for Exposure Point Concentrations at Hazardous Waste Sites. OSWER 9285.6-10, December.

USEPA, 2004: Risk Assessment Guidance for Superfund (Part E, Supplemental Guidance for Dermal Risk Assessment) Final. EPA/540/R/99/005.

Unit Intake Calculations

Ingestion Intake = (IR-GW x EF x ED)/(BW x AT)

Dermal Intake = (SA x EV x EF x ED)/(BW x AT)

Non-Mutagenic Chemicals

Cancer Ingestion Intake = 2.42E-06 Cancer Dermal Intake = 2.42E+01

Mutagenic Chemicals

Cancer Ingestion Intake (Age 0 - 2) = 8.06E-07 Cancer Dermal Intake (Age 0 - 2) = 8.06E+00

Cancer Ingestion Intake (Age 2 - 6) = 1.61E-06 Cancer Dermal Intake (Age 2 - 6) = 1.61E+01

Noncarcinogenic Chemicals

Noncancer Ingestion Intake = 2.82E-05 Noncancer Dermal Intake = 2.82E+02

Cancer risk from ingestion = Groundwater concentration x Cancer Ingestion Intake x Oral Cancer Slope Factor

Cancer risk from dermal contact = Groundwater concentration x Cancer Dermal Intake x DAevent x Dermal Cancer Slope Factor

Hazard Index from ingestion = Groundwater concentration x Noncancer Ingestion Intake / Oral Reference Dose

Hazard Index from dermal contact = Groundwater concentration x Noncancer Dermal Intake x DAevent / Dermal Reference Dose

TABLE 4.14.CTE

VALUES USED FOR DAILY INTAKE CALCULATIONS

CENTRAL TENDENCY EXPOSURE - CHILD RESIDENTS - INHALATION OF VOLATILES FROM GROUNDWATER

NWIRP CALVERTON, CALVERTON, NEW YORK

Scenario Timeframe: Current/Future
Medium: Groundwater
Exposure Medium: Air

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Inhalation	Residents	Child	Site 2	CA	Chemical concentration in air	Calculated	mg/m3	USEPA, 1991a	Exposure Concentration (mg/m^3) =
				GW	Chemical concentration in water.	95% UCL or Max	ug/L	USEPA, 2002	
				CF	Conversion Factor	0.001	mg/ug	--	CA x ET x EF x ED
				ET	Exposure Time	24	hours/day	USEPA, 1991b	AT x 24 hours/day
				EF	Exposure Frequency	234	days/year	U.S. EPA, 1993	
				ED1	Exposure Duration (Age 0 - 2)	1	years	(1), USEPA, 1989, 2005	CA = CW x CF x VF
				ED2	Exposure Duration (Age 2 - 6)	1	years	(1), USEPA, 1989, 2005	
				AT-C	Averaging Time (Cancer)	25550	days	USEPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	730	days	USEPA, 1989	
				VF	Volatilization Factor	0.5	L/m3	USEPA, 1991	

Notes:

1 - Children will be evaluated as one age group (0 - 6 years) for non-mutagenic chemicals. For chemicals that act via the mutagenic mode of action, residential children will be evaluated as two age groups, 0 - 2 years and 2 - 6 years in accordance with USEPA's Supplemental Guidance of Assessing Susceptibility from Early-Life Exposure to Carcinogens (USEPA, 2005).

USEPA, 1989: Risk Assessment Guidance for Superfund. Vol 1: Human Health Evaluation Manual, Part A. EPA/540/1-86/060.

USEPA, 1991a: Human Health Evaluation Manual, Part B: Development of Risk-based Preliminary Remediation Goals. OSWER Directive 9285.7-01B.

USEPA, 1991b: Risk Assessment Guidance for Superfund - Supplemental Guidance- Standard Default Exposure Factors Interim Final.

USEPA, 1993: Superfund Standard Default Exposure Factors for the Central Tendency and Reasonable Maximum Exposure.

USEPA, 2002: Calculating Upper Confidence Limits for Exposure Point Concentrations at Hazardous Waste Sites. OSWER 9285.6-10.

Unit Intake Calculations

Unit Exposure Concentration = (ET x EF x ED)/(AT x 24 hours/day)

Cancer Inhalation Intake = 9.16E-06 Noncancer Inhalation Intake = 3.21E-04

Cancer risk from ingestion = Air concentration x Cancer Inhalation Intake x Inhalation Cancer Slope Factor

TABLE 4.15.CTE
VALUES USED FOR DAILY INTAKE CALCULATIONS
CENTRAL TENDENCY EXPOSURES - ADULT RESIDENTS - SOILS
NWIRP CALVERTON, CALVERTON, NEW YORK

Scenario Timeframe: Future
Medium: Surface Soil/Subsurface Soil
Exposure Medium: Surface/Subsurface Soil

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Ingestion	Resident	Adult	Site 2	CS	Chemical concentration in soil	Max or 95% UCL	mg/kg	USEPA, 2002	Intake (mg/kg/day) =
				IR-S	Ingestion Rate	50	mg/day	USEPA, 1993	
				CF3	Conversion Factor 3	1.0E-06	kg/mg	--	CS x IRS x CF3 x FI x EF x ED
				FI	Fraction Ingested	1	unitless	USEPA, 1993	BW x AT
				EF	Exposure Frequency	234	days/year	USEPA, 1993	
				ED1	Exposure Duration (Age 6 - 16)	2	years	(1), USEPA, 1989, 2005	
				ED2	Exposure Duration (Age 16 - 30)	5	years	(1), USEPA, 1989, 2005	
				BW	Body Weight	70	kg	USEPA, 1989	
				AT-C	Averaging Time (Cancer)	25,550	days	USEPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	2,555	days	USEPA, 1989	
Dermal	Resident	Adult	Site 2	CS	Chemical concentration in soil	Max or 95% UCL	mg/kg	USEPA, 2002	Dermally Absorbed Dose (mg/kg/day) =
				CF3	Conversion Factor 3	1.0E-06	kg/mg	--	
				SA	Skin Surface Available for Contact	5,700	cm2	USEPA, 2004	CS x CF3 x SA x SSAF x DABS x EV x EF x ED
				SSAF	Soil to Skin Adherence Factor	0 01	mg/cm2/event	USEPA, 2004	BW x AT
				DABS	Absorption Factor	Chemical Specific	unitless	USEPA, 2004	
				EV	Events Frequency	1	events/day	USEPA, 2004	
				EF	Exposure Frequency	234	days/year	USEPA, 1993	
				ED1	Exposure Duration (Age 6 - 16)	2	years	(1), USEPA, 1989, 2005	
				ED2	Exposure Duration (Age 16 - 30)	5	years	(1), USEPA, 1989, 2005	
				BW	Body Weight	70	kg	USEPA, 1989	
				AT-C	Averaging Time (Cancer)	25,550	days	USEPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	2,555	days	USEPA, 1989	

Notes:

1 - Adults will be evaluated as one age group (7 - 30 years) for non-mutagenic chemicals. For chemicals that act via the mutagenic mode of action, residential adults will be evaluated as two age groups, 7 - 16 years and 16 - 30 years in accordance with USEPA's Supplemental Guidance of Assessing Susceptibility from Early-Life Exposure to Carcinogens (USEPA, 2005).

Sources:

USEPA, 1989: Risk Assessment Guidance for Superfund. Vol 1: Human Health Evaluation Manual, Part A

USEPA, 1993: Superfund Standard Default Exposure Factors for the Central Tendency and Reasonable Maximum Exposure.

USEPA, 2002: Calculating Upper Confidence Limits for Exposure Point Concentrations at Hazardous Waste Sites. OSWER 9285.6-10.

USEPA, 2004: Risk Assessment Guidance for Superfund (Part E, Supplemental Guidance for Dermal Risk Assessment) Final. EPA/540/R/99/005.

Unit Intake Calculations

Incidental Ingestion Intake = (IR-S x CF3 x FI x EF x ED)/(BW x AT)

Dermal Intake = (CF3 x SA x SSAF x EF x ED)/(BW x AT)

Non-Mutagenic Chemicals

Cancer Ingestion Intake = 4.58E-08 Cancer Dermal Intake = 5.22E-08

Mutagenic Chemicals

Cancer Ingestion Intake (Age 6 - 16) = 1.31E-08 Cancer Dermal Intake (Age 6 - 16) = 1.49E-08

Cancer Ingestion Intake (Age 16 - 30) = 3.27E-08 Cancer Dermal Intake (Age 16 - 30) = 3.73E-08

Noncarcinogenic Chemicals

Noncancer Ingestion Intake = 4 58E-07 Noncancer Dermal Intake = 5.22E-07

Cancer risk from ingestion = Soil concentration x Cancer Ingestion Intake x Oral Cancer Slope Factor

Cancer risk from dermal contact = Soil concentration x Cancer Dermal Intake x Absorption Factor x Dermal Cancer Slope Factor

Hazard Index from Ingestion = Soil concentration x Noncancer Ingestion Intake / Oral Reference Dose

Hazard Index from dermal contact = Soil concentration x Noncancer Dermal Intake x Absorption Factor / Dermal Reference Dose

TABLE 4.16.CTE
VALUES USED FOR DAILY INTAKE CALCULATIONS
CENTRAL TENDENCY EXPOSURES - ADULT RESIDENTS - SOILS TO AIR
NWIRP CALVERTON, CALVERTON, NEW YORK

Scenario Timeframe: Future
Medium: Surface/Subsurface Soil
Exposure Medium: Air

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Inhalation	Resident	Adult	Site 2	CA	Chemical concentration in air	Calculated	mg/m3	USEPA, 2002a	Exposure Concentration (mg/m^3) =
				CS	Chemical concentration in soil	Max or 95% UCL	mg/kg	USEPA, 2002b	
				ET	Exposure Time	24	hours/day	USEPA, 1993	CA x ET x EF x ED
				EF	Exposure Frequency	234	days/year	USEPA, 1994	AT x 24 hours/day
				ED1	Exposure Duration (Age 6 - 16)	2	years	(1), USEPA, 1989, 2005	
				ED2	Exposure Duration (Age 16 - 30)	5	years	(1), USEPA, 1989, 2005	
				AT-C	Averaging Time (Cancer)	25,550	days	USEPA, 1989	CA = (1/PEF + 1/VF) x Cs
				AT-N	Averaging Time (Non-Cancer)	2555	days	USEPA, 1989	
				PEF	Particulate Emission Factor	1.21E+09	m3/kg	USEPA 2004	
				VF	Volatilization Factor	Chemical-specific	m3/kg	USEPA, 2002a	
				Q/C	Inverse of mean concentration at center of source	83.53	g/m2-s per kg/m3	NYSDEC 2006	

Notes:

1 - Adults will be evaluated as one age group (7 - 30 years) for non-mutagenic chemicals. For chemicals that act via the mutagenic mode of action, residential adults will be evaluated as two age groups, 7 - 16 years and 16 - 30 years in accordance with USEPA's Supplemental Guidance of Assessing Susceptibility from Early-Life Exposure to Carcinogens (USEPA, 2005).

Sources:

NYSDEC, 2006: New York State Brownfields Program, Development of Soil Cleanup Objectives, Technical Support Document.

USEPA, 1989: Risk Assessment Guidance for Superfund. Vol 1: Human Health Evaluation Manual, Part A. USEPA/540/1-86/060.

USEPA, 1993: Superfund Standard Default Exposure Factors for the Central Tendency and Reasonable Maximum Exposure.

USEPA, 2002a: Supplemental Guidance for Developing Soil Screening Levels for Superfund Sites. OSWER 9355.4-24.

USEPA, 2002b: Calculating Upper Confidence Limits for Exposure Point Concentrations at Hazardous Waste Sites. OSWER 9285.6-10.

Unit Intake Calculations

Unit Exposure Concentration = (ET x EF x ED)/(AT x 24 hours/day)

Non-Mutagenic Chemicals

Cancer Inhalation Intake = 6.41E-02

Noncarcinogenic Chemicals

Noncancer Inhalation Intake = 6.41E-01

Mutagenic Chemicals

Cancer Inhalation Intake (Age 6 - 16) = 1.83E-02

Cancer Inhalation Intake (Age 16 - 30) = 4.58E-02

Cancer risk from ingestion = Air concentration x Cancer Inhalation Intake x Inhalation Cancer Slope Factor

Hazard Index from ingestion = Air concentration x Noncancer Inhalation Intake / Inhalation Reference Dose

TABLE 4.17.CTE
VALUES USED FOR DAILY INTAKE CALCULATIONS
CENTRAL TENDENCY EXPOSURES - ADULT RESIDENTS - GROUNDWATER
NWIRP CALVERTON, CALVERTON, NEW YORK

Scenario Timeframe: Future
Medium: Groundwater
Exposure Medium: Groundwater

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Ingestion	Residents	Adult	Site 2	CGW	Chemical Concentration in Groundwater	95% UCL or Max	ug/L	USEPA, 2002	Chronic Daily Intake (CDI) (mg/kg/day) =
				CF	Conversion Factor	0.001	mg/ug	--	
				IR-GW	Ingestion Rate of Groundwater	1.4	L/day	USEPA, 1993	CGW x CF x IR-GW x EF x ED
				EF	Exposure Frequency	234	days/year	USEPA, 1993	BW x AT
				ED1	Exposure Duration (Age 6 - 16)	2	years	(1), USEPA, 1989, 2005	
				ED2	Exposure Duration (Age 16 - 30)	5	years	(1), USEPA, 1989, 2005	
				BW	Body Weight	70	kg	USEPA, 1989	
				AT-C	Averaging Time (Cancer)	25,550	days	USEPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	2,555	days	USEPA, 1989	
Dermal	Residents	Adult	Site 2	Daevent	Dermally Absorbed Dose per Event	Calculated	mg/cm2-event	USEPA, 2004	Dermally Absorbed Dose (mg/kg/day) =
				Cw	Chemical Concentration in Groundwater	Max or 95% UCL	mg/kg	USEPA, 2002a	
				FA	Fraction Absorbed	Chemical Specific	unitless	USEPA, 2004	DAevent x EV x EF x ED x SA
				CF	Conversion factor	0.001	L/cm^3	--	BW x AT
				Kp	Permeability coefficient	Chemical Specific	cm/hr	USEPA, 2004	
				τ	Lag time	Chemical Specific	hr/event	USEPA, 2004	For Inorganics
				t*	Time it takes to reach steady state	Chemical Specific	hr/event	USEPA, 2004	DAevent = Kp x CW x CF x tevent
				tevent	Duration of event	0.25	hr/event	USEPA, 2004	
				B	Bunge model constant	Chemical Specific	unitless	USEPA, 2004	For organics if tevent <= t*
				SA	Skin Surface Available for Contact	18,000	cm2	USEPA, 2004	DAevent= 2 x FA x Kp x Cw x CF x sqrt[(6 x τ x tevent)/pi]
				EV	Event Frequency	1	events/day	USEPA, 2004	
				EF	Exposure Frequency	234	days/year	USEPA, 1993	
				ED1	Exposure Duration (Age 6 - 16)	2	years	(1), USEPA, 1989, 2005	DAevent =FA x Kp x Cw x CF x [tevent/(1+B) +
				ED2	Exposure Duration (Age 16 - 30)	5	years	(1), USEPA, 1989, 2005	
				BW	Body Weight	70	kg	USEPA, 1989	2 x τ +(1 + 3B + $3B^2$)/(1+B^2)
				AT-C	Averaging Time (Cancer)	25,550	days	USEPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	2,555	days	USEPA, 1989	

Notes:

1 - Adults will be evaluated as one age group (7 - 30 years) for non-mutagenic chemicals. For chemicals that act via the mutagenic mode of action, residential adults will be evaluated as two age groups, 7 - 16 years and 16 - 30 years in accordance with USEPA's Supplemental Guidance of Assessing Susceptibility from Early-Life Exposure to Carcinogens (USEPA, 2005).

Sources:

USEPA, 1989: Risk Assessment Guidance for Superfund. Vol 1: Human Health Evaluation Manual, Part A. EPA/540/1-86/060.

USEPA, 1993: Superfund Standard Default Exposure Factors for the Central Tendency and Reasonable Maximum Exposure.

USEPA, 2002: Calculating Upper Confidence Limits for Exposure Point Concentrations at Hazardous Waste Sites. OSWER 9285.6-10.

USEPA, 2004: Risk Assessment Guidance for Superfund (Part E, Supplemental Guidance for Dermal Risk Assessment) Final. EPA/540/R/99/005.

Unit Intake Calculations

Ingestion Intake = (IR-GW x EF x ED)/(BW x AT)

Dermal Intake = (SA x EV x EF x ED)/(BW x AT)

Non-Mutagenic Chemicals

Cancer Ingestion Intake = 1.28E-06 Cancer Dermal Intake = 1.65E+01

Mutagenic Chemicals

Cancer Ingestion Intake (Age 6 - 16) = 3.66E-07 Cancer Dermal Intake (Age 6 - 16) = 4.71E+00

Cancer Ingestion Intake (Age 16 - 30) = 9.16E-07 Cancer Dermal Intake (Age 16 - 30) = 1.18E+01

Noncarcinogenic Chemicals

Noncancer Ingestion Intake = 1.28E-05 Noncancer Dermal Intake = 1.65E+02

Cancer risk from ingestion = Groundwater concentration x Cancer Ingestion Intake x Oral Cancer Slope Factor

Cancer risk from dermal contact = Groundwater concentration x Cancer Dermal Intake x DAevent x Dermal Cancer Slope Factor

Hazard Index from ingestion = Groundwater concentration x Noncancer Ingestion Intake / Oral Reference Dose

Hazard Index from dermal contact = Groundwater concentration x Noncancer Dermal Intake x DAevent / Dermal Reference Dose

TABLE 4.18.CTE

VALUES USED FOR DAILY INTAKE CALCULATIONS

REASONABLE MAXIMUM EXPOSURE - ADULT RESIDENTS - INHALATION OF VOLATILES FROM GROUNDWATER

NWIRP CALVERTON, CALVERTON, NEW YORK

Scenario Timeframe: Current/Future
Medium: Groundwater
Exposure Medium: Air

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Inhalation	Residents	Adult	Site 2	CA	Chemical concentration in air	Calculated	mg/m3	USEPA, 1991	Exposure Concentration (mg/m^3) =
				GW	Chemical concentration in water.	95% UCL or Max	ug/L	USEPA, 2002	
				CF	Conversion Factor	0.001	mg/ug	--	CA x ET x EF x ED
				ET	Exposure Time	24	hours/day	USEPA, 1991	AT x 24 hours/day
				EF	Exposure Frequency	234	days/year	U.S. EPA, 1993	
				ED1	Exposure Duration (Age 6 - 16)	2	years	(1), USEPA, 1989, 2005	CA = CW x CF x VF
				ED2	Exposure Duration (Age 16 - 30)	5	years	(1), USEPA, 1989, 2005	
				AT-C	Averaging Time (Cancer)	25550	days	USEPA, 1989	
				AT-N	Averaging Time (Non-Cancer)	2555	days	USEPA, 1989	
				VF	Volatilization Factor	0.5	L/m3	USEPA, 1991	

Notes:

1 - Adults will be evaluated as one age group (7 - 30 years) for non-mutagenic chemicals. For chemicals that act via the mutagenic mode of action, residential adults will be evaluated as two age groups, 7 - 16 years and 16 - 30 years in accordance with USEPA's Supplemental Guidance of Assessing Susceptibility from Early-Life Exposure to Carcinogens (USEPA, 2005).

USEPA, 1989: Risk Assessment Guidance for Superfund. Vol 1: Human Health Evaluation Manual, Part A. EPA/540/1-86/060.

USEPA, 1991: Human Health Evaluation Manual, Part B: Development of Risk-based Preliminary Remediation Goals. OSWER Directive 9285.7-01B.

USEPA, 1993: Superfund Standard Default Exposure Factors for the Central Tendency and Reasonable Maximum Exposure.

USEPA, 2002: Calculating Upper Confidence Limits for Exposure Point Concentrations at Hazardous Waste Sites. OSWER 9285.6-10.

Unit Intake Calculations

Unit Exposure Concentration = (ET x EF x ED)/(AT x 24 hours/day)

Cancer Inhalation Intake = 1.83E-05 Noncancer Inhalation Intake = 1.83E-04

Cancer risk from ingestion = Air concentration x Cancer Inhalation Intake x Inhalation Cancer Slope Factor

Hazard Index from ingestion = Air concentration x Noncancer Inhalation Intake / Inhalation Reference Dose

RAGS Part D Table 5

Non-Cancer Toxicity Data

LIST OF TABLES
RAGS PART D TABLE 5
NON-CANCER TOXICITY DATA

Table No.

5-1 Non-Cancer Toxicity Data - Oral/Dermal
5-2 Non-Cancer Toxicity Data - Inhalation

TABLE 5.1
NON-CANCER TOXICITY DATA -- ORAL/DERMAL
SITE 2 - FIRE TRAINING AREA
NWIRP CALVERTON
CALVERTON, NEW YORK

Chemical of Potential Concern	Chronic/ Subchronic	Oral RfD		Oral Absorption Efficiency for Dermal[1]	Absorbed RfD for Dermal[2]		Primary Target Organ(s)	Combined Uncertainty/Modifying Factors	RfD:Target Organ(s)	
		Value	Units		Value	Units			Source(s)	Date(s) (MM/DD/YYYY)
Volatile Organic Compounds										
1,4-Dichlorobenzene	Subchronic	7.0E-02	mg/kg/day	1	7.0E-02	mg/kg/day	Liver	100/1	ATSDR	7/2006
	Chronic	7.0E-02	mg/kg/day	1	7.0E-02	mg/kg/day	Liver	100/1	ATSDR	7/2006
Chloroform	Subchronic	1.0E-01	mg/kg/day	1	1.0E-01	mg/kg/day	Liver	100/1	ATSDR	9/1997
	Chronic	1.0E-02	mg/kg/day	1	1.0E-02	mg/kg/day	Liver	100/1	IRIS	5/25/2012
cis-1,2-Dichloroethene	Subchronic	2.0E-02	mg/kg/day	1	2.0E-02	mg/kg/day	Kidney	300/1	PPRTV	2/3/2011
	Chronic	2.0E-03	mg/kg/day	1	2.0E-03	mg/kg/day	Kidney	3000/1	IRIS	5/25/2012
Ethylbenzene	Subchronic	5.0E-02	mg/kg/day	1	5.0E-02	mg/kg/day	Liver	1000/1	PPRTV	9/9/2010
	Chronic	1.0E-01	mg/kg/day	1	1.0E-01	mg/kg/day	Liver, Kidney	1000/1	IRIS	5/25/2012
Tetrachloroethene	Subchronic	1.0E-01	mg/kg/day	1	1.0E-01	mg/kg/day	Liver	100/1	HEAST	7/1997
	Chronic	6.0E-03	mg/kg/day	1	6.0E-03	mg/kg/day	Neurotoxicity	1000/1	IRIS	5/25/2012
Trichloroethene	Chronic	5.0E-04	mg/kg/day	1	5.0E-04	mg/kg/day	Immune System, Developmental	1000/1	IRIS	5/25/2012
Vinyl Chloride	Chronic	3.0E-03	mg/kg/day	1	3.0E-03	mg/kg/day	Liver	30/1	IRIS	5/25/2012
m+p-Xylene[3]	Subchronic	4.0E-01	mg/kg/day	1	4.0E-01	mg/kg/day	Body Weight	1000/1	PPRTV	9/30/2009
	Chronic	2.0E-01	mg/kg/day	1	2.0E-01	mg/kg/day	Body Weight	1000/1	IRIS	5/25/2012
o-Xylene[3]	Subchronic	4.0E-01	mg/kg/day	1	4.0E-01	mg/kg/day	Body Weight	1000/1	PPRTV	9/30/2009
	Chronic	2.0E-01	mg/kg/day	1	2.0E-01	mg/kg/day	Body Weight	1000/1	IRIS	5/25/2012
Semivolatile Organic Compounds										
Benzo(a)anthracene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenzo(a,h)anthracene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Inorganics										
Arsenic	Chronic	3.0E-04	mg/kg/day	1	3.0E-04	mg/kg/day	Skin, Cardiovascular System	3/1	IRIS	5/25/2012

Notes:
1 - U.S. EPA, 2004: Risk Assessment Guidance for Superfund (Part E, Supplemental Guidance for Dermal Risk Assessment) Interim. EPA/540/R/99/005.
2 - Adjusted dermal RfD = Oral RfD x Oral Absorption Efficiency for Dermal.
3 - Xylene is used as a surrogate for m+p-xylene and o-xylene.

Definitions:
ATSDR = Agency for Toxic Substances and Disease Registry.
HEAST = Health Effects Assessment Summary Tables
IRIS = Integrated Risk Information System
NA = Not Available.
PPRTV = Provisional Peer Reviewed Toxicity Value.

TABLE 5.2
NON-CANCER TOXICITY DATA -- INHALATION
SITE 2 - FIRE TRAINING AREA
NWIRP CALVERTON
CALVERTON, NEW YORK

Chemical of Potential Concern	Chronic/ Subchronic	Inhalation RfC		Extrapolated RfD[1]		Primary Target Organ(s)	Combined Uncertainty/Modifying Factors	RfC : Target Organ(s)	
		Value	Units	Value	Units			Source(s)	Date(s) (MM/DD/YYYY)
Volatile Organic Compounds									
1,4-Dichlorobenzene	Subchronic	1.2E+00	mg/m3	3.4E-01	(mg/kg/day)	Liver	100/1	ATSDR	7/2006
	Chronic	8.0E-01	mg/m3	2.3E-01	(mg/kg/day)	Liver	100/1	IRIS	5/25/2012
Chloroform	Subchronic	2.4E-01	mg/m3	6.9E-02	(mg/kg/day)	Liver	300/1	ATSDR	9/1997
	Chronic	9.8E-02	mg/m3	2.8E-02	(mg/kg/day)	Liver	100/1	ATSDR	9/1997
cis-1,2-Dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethylbenzene	Subchronic	9.0E+00	mg/m3	2.6E+00	(mg/kg/day)	Ear	100/1	PPRTV	9/9/2010
	Chronic	1.0E+00	mg/m3	2.9E-01	(mg/kg/day)	Developmental	300/1	IRIS	5/25/2012
Tetrachloroethene	Chronic	4.0E-02	mg/m3	1.1E-02	(mg/kg/day)	Neurotoxicity	300/1	IRIS	5/25/2012
Trichloroethene	Subchronic	5.4E-01	mg/m3	1.5E-01	(mg/kg/day)	Central Nervous System	300/1	ATSDR	9/1997
	Chronic	2.0E-03	mg/m3	5.7E-04	(mg/kg/day)	Immune System, Developmental	100/1	IRIS	5/25/2012
Vinyl Chloride	Subchronic	7.7E-02	mg/m3	2.2E-02	(mg/kg/day)	Liver	30/1	ATSDR	7/2006
	Chronic	1.0E-01	mg/m3	2.9E-02	(mg/kg/day)	Liver	30/1	IRIS	5/25/2012
m+p-Xylene[3]	Subchronic	4.0E-01	mg/m3	1.1E-01	(mg/kg/day)	Central Nervous System	100/1	PPRTV	9/30/2009
	Chronic	1.0E-01	mg/m3	2.9E-02	(mg/kg/day)	Central Nervous System	300/1	IRIS	5/25/2012
o-Xylene[3]	Subchronic	4.0E-01	mg/m3	1.1E-01	(mg/kg/day)	Central Nervous System	100/1	PPRTV	9/30/2009
	Chronic	1.0E-01	mg/m3	2.9E-02	(mg/kg/day)	Central Nervous System	300/1	IRIS	5/25/2012
Semivolatile Organic Compounds									
Benzo(a)anthracene	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenzo(a,h)anthracene	NA	NA	NA	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	NA	NA	NA	NA	NA	NA	NA	NA	NA
Inorganics									
Arsenic	Chronic	1.5E-05	mg/m3	4.3E-06	(mg/kg/day)	Skin, Cardiovascular System	NA	Cal EPA	9/2009

Notes:
1 - Extrapolated RfD = RfC *20m^3/day / 70 kg
2 - Xylenes is used as a surrogate for m+p-xylene and o-xylene.

Definitions:
ATSDR = Agency for Toxic Substances and Disease Registry.
Cal EPA = California Environmental Protection Agency, Technical Support Document for Describing Available Cancer Slope Factors, September 2009.
IRIS = Integrated Risk Information System
NA = Not Available.
PPRTV = Provisional Peer Reviewed Toxicity Value.

RAGS Part D Table 6

Cancer Toxicity Data

LIST OF TABLES
RAGS PART D TABLE 6
CANCER TOXICITY DATA

Table No.

6-1	Cancer Toxicity Data - Oral/Dermal
6-2	Cancer Toxicity Data - Inhalation

TABLE 6.1
CANCER TOXICITY DATA -- ORAL/DERMAL
SITE 2 - FIRE TRAINING AREA
NWIRP CALVERTON
CALVERTON, NEW YORK

Chemical of Potential Concern	Oral Cancer Slope Factor		Oral Absorption Efficiency for Dermal[1]	Absorbed Cancer Slope Factor for Dermal[2]		Weight of Evidence/ Cancer Guideline Description	Oral CSF	
	Value	Units		Value	Units		Source(s)	Date(s) (MM/DD/YYYY)
Volatile Organic Compounds								
1,4-Dichlorobenzene	5.4E-03	$(mg/kg/day)^{-1}$	1	5.4E-03	$(mg/kg/day)^{-1}$	Not Assessed under the IRIS Program	Cal EPA	9/2009
Chloroform	3.1E-02	$(mg/kg/day)^{-1}$	1	3.1E-02	$(mg/kg/day)^{-1}$	Likely to be carcinogenic to humans	Cal EPA	9/2009
cis-1,2-Dichloroethene	NA	NA	NA	NA	NA	Inadequate information to assess carcinogenic potential	IRIS	5/25/2012
Ethylbenzene	1.1E-02	$(mg/kg/day)^{-1}$	1	1.1E-02	$(mg/kg/day)^{-1}$	D (Not classifiable as to human carcinogenicity)	Cal EPA	9/2009
Tetrachloroethene	2.1E-03	$(mg/kg/day)^{-1}$	1	2.1E-03	$(mg/kg/day)^{-1}$	Likely to be carcinogenic to humans	IRIS	5/25/2012
Trichloroethene - non-mutagen[3]	3.7E-02	$(mg/kg/day)^{-1}$	1	3.7E-02	$(mg/kg/day)^{-1}$	Carcinogenic to humans	IRIS	5/25/2012
Trichloroethene - mutagen[3,4]	9.3E-03	$(mg/kg/day)^{-1}$	1	9.3E-03	$(mg/kg/day)^{-1}$	Carcinogenic to humans	IRIS	5/25/2012
Vinyl Chloride	7.2E-01	$(mg/kg/day)^{-1}$	1	7.2E-01	$(mg/kg/day)^{-1}$	Known/likely human carcinogen	IRIS	5/25/2012
m+p-Xylene	NA	NA	NA	NA	NA	Data are inadequate for an assessment of human carcinogenic potential	IRIS	5/25/2012
o-Xylene	NA	NA	NA	NA	NA	Data are inadequate for an assessment of human carcinogenic potential	IRIS	5/25/2012
Semivolatile Organic Compounds								
Benzo(a)anthracene[4]	7.3E-01	$(mg/kg/day)^{-1}$	1	7.3E-01	$(mg/kg/day)^{-1}$	B2 / Probable human carcinogen	USEPA(1)	7/1993
Benzo(a)pyrene[4]	7.3E+00	$(mg/kg/day)^{-1}$	1	7.3E+00	$(mg/kg/day)^{-1}$	B2 / Probable human carcinogen	IRIS	5/25/2012
Benzo(b)fluoranthene[4]	7.3E-01	$(mg/kg/day)^{-1}$	1	7.3E-01	$(mg/kg/day)^{-1}$	B2 / Probable human carcinogen	USEPA(1)	7/1993
Dibenzo(a,h)anthracene[4]	7.3E+00	$(mg/kg/day)^{-1}$	1	7.3E+00	$(mg/kg/day)^{-1}$	B2 / Probable human carcinogen	USEPA(1)	7/1993
Indeno(1,2,3-cd)pyrene[4]	7.3E-01	$(mg/kg/day)^{-1}$	1	7.3E-01	$(mg/kg/day)^{-1}$	B2 / Probable human carcinogen	USEPA(1)	7/1993
Inorganics								
Arsenic	1.5E+00	$(mg/kg/day)^{-1}$	1	1.5E+00	$(mg/kg/day)^{-1}$	A / human carcinogen	IRIS	5/25/2012

Notes:

1 - USEPA, 2004: Risk Assessment Guidance for Superfund (Part E, Supplemental Guidance for Dermal Risk Assessment) Interim. EPA/540/R/99/005.

2 - Adjusted cancer slope factor for dermal = Oral cancer slope factor / Oral absorption efficiency for dermal.

3 - See text for a discussion of trichloroethene toxicity.

4 - Trichloroethene and carcinogenic PAHs are considered to act via the mutagenic mode of action. These chemicals are evaluated in accordance with USEPA's Supplemental Guidance for Assessing Susceptibility from Early-Life Exposure to Carcinogens (2005).

Cal EPA = California Environmental Protection Agency, Technical Support Document for Describing Available Cancer Slope Factors, September 2009.

IRIS = Integrated Risk Information System.

NA = Not Available.

USEPA(1) = USEPA Provisional Guidance for Quantitative Risk Assessment of Polycyclic Aromatic Hydrocarbons, July 1993, EPA/600/R-93/089.

TABLE 6.2
CANCER TOXICITY DATA -- INHALATION
SITE 2 - FIRE TRAINING AREA
NWIRP CALVERTON
CALVERTON, NEW YORK

Chemical of Potential Concern	Unit Risk		Inhalation Cancer Slope Factor[1]		Weight of Evidence/ Cancer Guideline Description	Unit Risk : Inhalation CSF	
	Value	Units	Value	Units		Source(s)	Date(s) (MM/DD/YYYY)
Volatile Organic Compounds							
1,4-Dichlorobenzene	1.1E-05	$(ug/m^3)^{-1}$	3.9E-02	$(mg/kg/day)^{-1}$	Not Assessed under the IRIS Program	Cal EPA	9/2009
Chloroform	2.3E-05	$(ug/m^3)^{-1}$	8.1E-02	$(mg/kg/day)^{-1}$	Likely to be carcinogenic to humans	IRIS	5/25/2012
cis-1,2-Dichloroethene	NA	NA	NA	NA	Inadequate information to assess carcinogenic potential	IRIS	5/25/2012
Ethylbenzene	2.5E-06	$(ug/m^3)^{-1}$	8.8E-03	$(mg/kg/day)^{-1}$	D (Not classifiable as to human carcinogenicity)	Cal EPA	9/2009
Tetrachloroethene	2.6E-07	$(ug/m^3)^{-1}$	9.1E-04	$(mg/kg/day)^{-1}$	Likely to be carcinogenic to humans	IRIS	5/25/2012
Trichloroethene - non-mutagen[2]	3.1E-06	$(ug/m^3)^{-1}$	1.1E-02	$(mg/kg/day)^{-1}$	Carcinogenic to humans	IRIS	5/25/2012
Trichloroethene - mutagen[2,3]	1.0E-06	$(ug/m^3)^{-1}$	3.5E-03	$(mg/kg/day)^{-1}$	Carcinogenic to humans	IRIS	5/25/2012
Vinyl Chloride	4.4E-06	$(ug/m^3)^{-1}$	1.5E-02	$(mg/kg/day)^{-1}$	Known/likely human carcinogen	IRIS	5/25/2012
m+p-Xylene	NA	NA	NA	NA	Data are inadequate for an assessment of human carcinogenic potential	IRIS	5/25/2012
o-Xylene	NA	NA	NA	NA	Data are inadequate for an assessment of human carcinogenic potential	IRIS	5/25/2012
Semivolatile Organic Compounds							
Benzo(a)anthracene[3]	1.1E-04	$(ug/m^3)^{-1}$	3.9E-01	$(mg/kg/day)^{-1}$	NA	Cal EPA	9/2009
Benzo(a)pyrene[3]	1.1E-03	$(ug/m^3)^{-1}$	3.9E+00	$(mg/kg/day)^{-1}$	NA	Cal EPA	9/2009
Benzo(b)fluoranthene[3]	1.1E-04	$(ug/m^3)^{-1}$	3.9E-01	$(mg/kg/day)^{-1}$	NA	Cal EPA	9/2009
Dibenzo(a,h)anthracene[3]	1.2E-03	$(ug/m^3)^{-1}$	4.2E+00	$(mg/kg/day)^{-1}$	NA	Cal EPA	9/2009
Indeno(1,2,3-cd)pyrene[3]	1.1E-04	$(ug/m^3)^{-1}$	3.9E-01	$(mg/kg/day)^{-1}$	NA	Cal EPA	9/2009
Inorganics							
Arsenic	4.3E-03	$(ug/m^3)^{-1}$	1.5E+01	$(mg/kg/day)^{-1}$	A / Known human carcinogen	IRIS	5/25/2012

TABLE 6.2
CANCER TOXICITY DATA -- INHALATION
SITE 2 - FIRE TRAINING AREA
NWIRP CALVERTON
CALVERTON, NEW YORK
PAGE 2 OF 2

Notes:

1 - Inhalation CSF = Unit Risk * 70 kg / 20m^3/day.

2 - See text for a discussion of trichloroethene toxicity.

3 - Trichloroethene and carcinogenic PAHs are considered to act via the mutagenic mode of action. These chemicals are evaluated in accordance with USEPA's Supplemental Guidance for Assessing Susceptibility from Early-Life Exposure to Carcinogens (2005).

Definitions:

IRIS = Integrated Risk Information System.

NA = Not Available.

Cal EPA = California Environmental Protection Agency, Technical Support Document for Describing Available Cancer Slope Factors, September 2009.

RAGS Part D Table 7

Calculation of Cancer Risks and Non-Cancer Hazards

LIST OF TABLES
RAGS PART D TABLE 7
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

Table No.

Reasonable Maximum Exposures

7.1.RME Construction Workers
7.2.RME Industrial Workers
7.3.RME Child Recreational Users
7.4.RME Adult Recreational Users
7.5.RME Child Residents
7.6.RME Adult Residents

Central Tendency Exposures

7.1.CTE Construction Workers
7.2.CTE Industrial Workers
7.3.CTE Child Recreational Users
7.4.CTE Adult Recreational Users
7.5.CTE Child Residents
7.6.CTE Adult Residents

TABLE 7.1.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURES
NWIRP CALVERTON, CALVERTON, NEW YORK

Scenario Timeframe: Future
Receptor Population: Construction Workers
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Surface/Subsurface Soil	Surface/Subsurface Soil	Site 2	Ingestion	Benzo(a)anthracene	0.228	mg/kg	1.1E-08	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	7.7E-09	7.4E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(a)pyrene	0.125	mg/kg	5.8E-09	(mg/kg/day)	7.3E+00	$(mg/kg/day)^{-1}$	4.2E-08	4.0E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(b)fluoranthene	0.184	mg/kg	8.5E-09	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	6.2E-09	5.9E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Dibenzo(a,h)anthracene	0.026	mg/kg	1.2E-09	(mg/kg/day)	7.3E+00	$(mg/kg/day)^{-1}$	8.8E-09	8.4E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Indeno(1,2,3-cd)pyrene	0.084	mg/kg	3.9E-09	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	2.8E-09	2.7E-07	(mg/kg/day)	NA	(mg/kg/day)	--
			Exp. Route Total								6.6E-08					--
			Dermal	Benzo(a)anthracene	0.228	mg/kg	4.1E-09	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	3.0E-09	2.9E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(a)pyrene	0.125	mg/kg	2.2E-09	(mg/kg/day)	7.3E+00	$(mg/kg/day)^{-1}$	1.6E-08	1.6E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(b)fluoranthene	0.184	mg/kg	3.3E-09	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	2.4E-09	2.3E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Dibenzo(a,h)anthracene	0.026	mg/kg	4.7E-10	(mg/kg/day)	7.3E+00	$(mg/kg/day)^{-1}$	3.4E-09	3.3E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Indeno(1,2,3-cd)pyrene	0.084	mg/kg	1.5E-09	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	1.1E-09	1.1E-07	(mg/kg/day)	NA	(mg/kg/day)	--
			Exp. Route Total								2.6E-08					--
		Exposure Point Total									9.4E-08					--
	Exposure Medium Total										9.4E-08					--
	Air	Site 2	Inhalation	Benzo(a)anthracene	1.6E-7	mg/m^3	5.3E-10	(mg/m^3)	1.1E-04	$(ug/m^3)^{-1}$	5.8E-11	3.7E-08	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(a)pyrene	8.9E-8	mg/m^3	2.9E-10	(mg/m^3)	1.1E-03	$(ug/m^3)^{-1}$	3.2E-10	2.0E-08	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(b)fluoranthene	1.3E-7	mg/m^3	4.3E-10	(mg/m^3)	1.1E-04	$(ug/m^3)^{-1}$	4.7E-11	3.0E-08	(mg/m^3)	NA	(mg/m^3)	--
				Dibenzo(a,h)anthracene	1.9E-8	mg/m^3	6.1E-11	(mg/m^3)	1.2E-03	$(ug/m^3)^{-1}$	7.3E-11	4.2E-09	(mg/m^3)	NA	(mg/m^3)	--
				Indeno(1,2,3-cd)pyrene	6.0E-8	mg/m^3	2.0E-10	(mg/m^3)	1.1E-04	$(ug/m^3)^{-1}$	2.2E-11	1.4E-08	(mg/m^3)	NA	(mg/m^3)	--
			Exp. Route Total								5.2E-10					--
		Exposure Point Total									5.2E-10					--
	Exposure Medium Total										5.2E-10					--
Medium Total											9.4E-08					--
Groundwater	Groundwater	Site 2	Dermal	1,4-Dichlorobenzene	1.30	ug/L	1.5E-08	(mg/kg/day)	5.4E-03	$(mg/kg/day)^{-1}$	8.2E-11	1.1E-06	(mg/kg/day)	7.0E-02	(mg/kg/day)	0.00002
				Chloroform	0.545	ug/L	1.0E-09	(mg/kg/day)	3.1E-02	$(mg/kg/day)^{-1}$	3.1E-11	7.1E-08	(mg/kg/day)	1.0E-01	(mg/kg/day)	7.1E-7
				cis-1,2-Dichloroethene	0.892	ug/L	2.5E-09	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	- -	1.7E-07	(mg/kg/day)	2.0E-02	(mg/kg/day)	0.000009
				Ethylbenzene	4.80	ug/L	5.7E-08	(mg/kg/day)	1.1E-02	$(mg/kg/day)^{-1}$	6.3E-10	4.0E-06	(mg/kg/day)	1.0E-01	(mg/kg/day)	0.00004
				m+p-Xylenes	7.80	ug/L	9.9E-08	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	- -	6.9E-06	(mg/kg/day)	4.0E-01	(mg/kg/day)	0.00002
				o-Xylene	16.0	ug/L	1.8E-07	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	- -	1.2E-05	(mg/kg/day)	4.0E-01	(mg/kg/day)	0.00003
				Trichloroethene	1.91	ug/L	6.2E-09	(mg/kg/day)	4.6E-02	$(mg/kg/day)^{-1}$	2.8E-10	4.3E-07	(mg/kg/day)	5.0E-04	(mg/kg/day)	0.0009
				Vinyl Chloride	1.80	ug/L	2.5E-09	(mg/kg/day)	7.2E-01	$(mg/kg/day)^{-1}$	1.8E-09	1.7E-07	(mg/kg/day)	NA	(mg/kg/day)	--
			Exp. Route Total								2.8E-09					0.0010
		Exposure Point Total									2.8E-09					0.0010
	Exposure Medium Total										2.8E-09					0.0010
	Air	Site 2	Inhalation	1,4-Dichlorobenzene	3.9E-5	mg/m^3	7.6E-09	(mg/m^3)	1.1E-05	$(ug/m^3)^{-1}$	8.4E-11	5.3E-07	(mg/m^3)	1.2E+00	(mg/m^3)	4.4E-7
				Chloroform	1.8E-5	mg/m^3	3.6E-09	(mg/m^3)	2.3E-05	$(ug/m^3)^{-1}$	8.2E-11	2.5E-07	(mg/m^3)	2.4E-01	(mg/m^3)	0.000001
				cis-1,2-Dichloroethene	3.3E-5	mg/m^3	6.5E-09	(mg/m^3)	NA	$(ug/m^3)^{-1}$	- -	4.5E-07	(mg/m^3)	NA	(mg/m^3)	--
				Ethylbenzene	1.7E-4	mg/m^3	3.4E-08	(mg/m^3)	2.5E-06	$(ug/m^3)^{-1}$	8.4E-11	2.4E-06	(mg/m^3)	9.0E+00	(mg/m^3)	2.6E-7
				m+p-Xylenes	2.8E-4	mg/m^3	5.5E-08	(mg/m^3)	NA	$(ug/m^3)^{-1}$	- -	3.8E-06	(mg/m^3)	4.0E-01	(mg/m^3)	0.000010
				o-Xylene	5.7E-4	mg/m^3	1.1E-07	(mg/m^3)	NA	$(ug/m^3)^{-1}$	- -	7.8E-06	(mg/m^3)	4.0E-01	(mg/m^3)	0.00002
				Trichloroethene	6.2E-5	mg/m^3	1.2E-08	(mg/m^3)	4.1E-06	$(ug/m^3)^{-1}$	4.9E-11	8.4E-07	(mg/m^3)	5.4E-01	(mg/m^3)	0.000002
				Vinyl Chloride	8.4E-5	mg/m^3	1.7E-08	(mg/m^3)	4.4E-06	$(ug/m^3)^{-1}$	7.3E-11	1.2E-06	(mg/m^3)	7.7E-02	(mg/m^3)	0.00002
			Exp. Route Total								3.7E-10					0.00005
		Exposure Point Total									3.7E-10					0.00005
	Exposure Medium Total										3.7E-10					0.00005
Medium Total											3.2E-09					0.001
										Total of Receptor Risks Across All Media	9.8E-08				Total of Receptor Hazards Across All Media	0.001

TABLE 7.2.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURES
NWIRP CALVERTON, CALVERTON, NEW YORK

Scenario Timeframe: Future
Receptor Population: Industrial Workers
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Surface/Subsurface Soil	Surface/Subsurface Soil	Site 2	Ingestion	Benzo(a)anthracene	0.228	mg/kg	8.0E-08	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	5.8E-08	2.2E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(a)pyrene	0.125	mg/kg	4.4E-08	(mg/kg/day)	7.3E+00	$(mg/kg/day)^{-1}$	3.2E-07	1.2E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(b)fluoranthene	0.184	mg/kg	6.4E-08	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	4.7E-08	1.8E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Dibenzo(a,h)anthracene	0.026	mg/kg	9.1E-09	(mg/kg/day)	7.3E+00	$(mg/kg/day)^{-1}$	6.6E-08	2.5E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Indeno(1,2,3-cd)pyrene	0.084	mg/kg	2.9E-08	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	2.1E-08	8.2E-08	(mg/kg/day)	NA	(mg/kg/day)	--
			Exp. Route Total								5.1E-07					--
			Dermal	Benzo(a)anthracene	0.228	mg/kg	6.8E-08	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	5.0E-08	1.9E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(a)pyrene	0.125	mg/kg	3.7E-08	(mg/kg/day)	7.3E+00	$(mg/kg/day)^{-1}$	2.7E-07	1.0E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(b)fluoranthene	0.184	mg/kg	5.5E-08	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	4.0E-08	1.5E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Dibenzo(a,h)anthracene	0.026	mg/kg	7.8E-09	(mg/kg/day)	7.3E+00	$(mg/kg/day)^{-1}$	5.7E-08	2.2E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Indeno(1,2,3-cd)pyrene	0.084	mg/kg	2.5E-08	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	1.8E-08	7.1E-08	(mg/kg/day)	NA	(mg/kg/day)	--
			Exp. Route Total								4.4E-07					--
		Exposure Point Total									9.5E-07					--
	Exposure Medium Total										9.5E-07					--
	Air	Site 2	Inhalation	Benzo(a)anthracene	1.9E-10	mg/m^3	1.5E-11	(mg/m^3)	1.1E-04	$(ug/m^3)^{-1}$	1.7E-12	4.3E-11	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(a)pyrene	1.0E-10	mg/m^3	8.4E-12	(mg/m^3)	1.1E-03	$(ug/m^3)^{-1}$	9.3E-12	2.4E-11	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(b)fluoranthene	1.5E-10	mg/m^3	1.2E-11	(mg/m^3)	1.1E-04	$(ug/m^3)^{-1}$	1.4E-12	3.5E-11	(mg/m^3)	NA	(mg/m^3)	--
				Dibenzo(a,h)anthracene	2.1E-11	mg/m^3	1.8E-12	(mg/m^3)	1.2E-03	$(ug/m^3)^{-1}$	2.1E-12	4.9E-12	(mg/m^3)	NA	(mg/m^3)	--
				Indeno(1,2,3-cd)pyrene	6.9E-11	mg/m^3	5.7E-12	(mg/m^3)	1.1E-04	$(ug/m^3)^{-1}$	6.2E-13	1.6E-11	(mg/m^3)	NA	(mg/m^3)	--
			Exp. Route Total								1.5E-11					--
		Exposure Point Total									1.5E-11					--
	Exposure Medium Total										1.5E-11					--
Medium Total											9.5E-07					--
										Total of Receptor Risks Across All Media	9.5E-07				Total of Receptor Hazards Across All Media	--

TABLE 7.3.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURES
NWIRP CALVERTON, CALVERTON, NEW YORK

Scenario Timeframe: Future
Receptor Population: Recreational Users
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Surface/Subsurface Soil	Surface/Subsurface Soil	Site 2	Ingestion	Benzo(a)anthracene	0.228	mg/kg	9.9E-08	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	7.2E-08	2.2E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(a)pyrene	0.125	mg/kg	5.4E-08	(mg/kg/day)	7.3E+00	$(mg/kg/day)^{-1}$	4.0E-07	1.2E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(b)fluoranthene	0.184	mg/kg	8.0E-08	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	5.8E-08	1.7E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Dibenzo(a,h)anthracene	0.026	mg/kg	1.1E-08	(mg/kg/day)	7.3E+00	$(mg/kg/day)^{-1}$	8.2E-08	2.5E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Indeno(1,2,3-cd)pyrene	0.084	mg/kg	3.6E-08	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	2.7E-08	8.0E-08	(mg/kg/day)	NA	(mg/kg/day)	--
			Exp. Route Total								6.4E-07					--
			Dermal	Benzo(a)anthracene	0.228	mg/kg	7.2E-08	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	5.3E-08	1.6E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(a)pyrene	0.125	mg/kg	4.0E-08	(mg/kg/day)	7.3E+00	$(mg/kg/day)^{-1}$	2.9E-07	8.6E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(b)fluoranthene	0.184	mg/kg	5.8E-08	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	4.2E-08	1.3E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Dibenzo(a,h)anthracene	0.026	mg/kg	8.2E-09	(mg/kg/day)	7.3E+00	$(mg/kg/day)^{-1}$	6.0E-08	1.8E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Indeno(1,2,3-cd)pyrene	0.084	mg/kg	2.7E-08	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	1.9E-08	5.8E-08	(mg/kg/day)	NA	(mg/kg/day)	--
			Exp. Route Total								4.6E-07					--
		Exposure Point Total									1.1E-06					--
	Exposure Medium Total										1.1E-06					--
	Air	Site 2	Inhalation	Benzo(a)anthracene	1.9E-10	mg/m^3	2.0E-12	(mg/m^3)	1.1E-04	$(ug/m^3)^{-1}$	2.2E-13	4.5E-12	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(a)pyrene	1.0E-10	mg/m^3	1.1E-12	(mg/m^3)	1.1E-03	$(ug/m^3)^{-1}$	1.2E-12	2.5E-12	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(b)fluoranthene	1.5E-10	mg/m^3	1.7E-12	(mg/m^3)	1.1E-04	$(ug/m^3)^{-1}$	1.8E-13	3.6E-12	(mg/m^3)	NA	(mg/m^3)	--
				Dibenzo(a,h)anthracene	2.1E-11	mg/m^3	2.3E-13	(mg/m^3)	1.2E-03	$(ug/m^3)^{-1}$	2.8E-13	5.1E-13	(mg/m^3)	NA	(mg/m^3)	--
				Indeno(1,2,3-cd)pyrene	6.9E-11	mg/m^3	7.5E-13	(mg/m^3)	1.1E-04	$(ug/m^3)^{-1}$	8.3E-14	1.6E-12	(mg/m^3)	NA	(mg/m^3)	--
			Exp. Route Total								2.0E-12					--
		Exposure Point Total									2.0E-12					--
	Exposure Medium Total										2.0E-12					--
Medium Total											1.1E-06					--
										Total of Receptor Risks Across All Media	1.1E-06				Total of Receptor Hazards Across All Media	--

Notes:
1 - Mutagenic chemicals were evaluated in accordance with USEPA's Supplemental Guidance for Assessing Susceptibility from Early-Life Exposure to Carcinogens (2005).

TABLE 7.4.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURES
NWIRP CALVERTON, CALVERTON, NEW YORK

Scenario Timeframe: Future
Receptor Population: Recreational Users
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Surface/Subsurface Soil	Surface/Subsurface Soil	Site 2	Ingestion	Benzo(a)anthracene	0.228	mg/kg	1.5E-08	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	1.1E-08	2.3E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(a)pyrene	0.125	mg/kg	8.0E-09	(mg/kg/day)	7.3E+00	$(mg/kg/day)^{-1}$	5.8E-08	1.3E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(b)fluoranthene	0.184	mg/kg	1.2E-08	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	8.6E-09	1.9E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Dibenzo(a,h)anthracene	0.026	mg/kg	1.7E-09	(mg/kg/day)	7.3E+00	$(mg/kg/day)^{-1}$	1.2E-08	2.6E-09	(mg/kg/day)	NA	(mg/kg/day)	--
				Indeno(1,2,3-cd)pyrene	0.084	mg/kg	5.4E-09	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	3.9E-09	8.5E-09	(mg/kg/day)	NA	(mg/kg/day)	--
			Exp. Route Total								9.4E-08					--
			Dermal	Benzo(a)anthracene	0.228	mg/kg	1.5E-08	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	1.1E-08	2.4E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(a)pyrene	0.125	mg/kg	8.3E-09	(mg/kg/day)	7.3E+00	$(mg/kg/day)^{-1}$	6.1E-08	1.3E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(b)fluoranthene	0.184	mg/kg	1.2E-08	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	8.9E-09	1.9E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Dibenzo(a,h)anthracene	0.026	mg/kg	1.7E-09	(mg/kg/day)	7.3E+00	$(mg/kg/day)^{-1}$	1.3E-08	2.7E-09	(mg/kg/day)	NA	(mg/kg/day)	--
				Indeno(1,2,3-cd)pyrene	0.084	mg/kg	5.6E-09	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	4.1E-09	8.9E-09	(mg/kg/day)	NA	(mg/kg/day)	--
			Exp. Route Total								9.7E-08					--
		Exposure Point Total									1.9E-07					--
	Exposure Medium Total										1.9E-07					--
	Air	Site 2	Inhalation	Benzo(a)anthracene	1.9E-10	mg/m^3	2.8E-12	(mg/m^3)	1.1E-04	$(ug/m^3)^{-1}$	3.1E-13	4.5E-12	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(a)pyrene	1.0E-10	mg/m^3	1.5E-12	(mg/m^3)	1.1E-03	$(ug/m^3)^{-1}$	1.7E-12	2.5E-12	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(b)fluoranthene	1.5E-10	mg/m^3	2.3E-12	(mg/m^3)	1.1E-04	$(ug/m^3)^{-1}$	2.5E-13	3.6E-12	(mg/m^3)	NA	(mg/m^3)	--
				Dibenzo(a,h)anthracene	2.1E-11	mg/m^3	3.2E-13	(mg/m^3)	1.2E-03	$(ug/m^3)^{-1}$	3.8E-13	5.1E-13	(mg/m^3)	NA	(mg/m^3)	--
				Indeno(1,2,3-cd)pyrene	6.9E-11	mg/m^3	1.0E-12	(mg/m^3)	1.1E-04	$(ug/m^3)^{-1}$	1.1E-13	1.6E-12	(mg/m^3)	NA	(mg/m^3)	--
			Exp. Route Total								2.8E-12					--
		Exposure Point Total									2.8E-12					--
	Exposure Medium Total										2.8E-12					--
Medium Total											1.9E-07					--
										Total of Receptor Risks Across All Media	1.9E-07				Total of Receptor Hazards Across All Media	--

Notes:
1 - Mutagenic chemicals were evaluated in accordance with USEPA's Supplemental Guidance for Assessing Susceptibility from Early-Life Exposure to Carcinogens (2005).

TABLE 7.5.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURES
NWIRP CALVERTON, CALVERTON, NEW YORK

Scenario Timeframe: Hypothetical
Receptor Population: Residents
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Surface/Subsurface Soil	Surface/Subsurface Soil	Site 2	Ingestion	Benzo(a)anthracene	0.228	mg/kg	1.3E-06	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	9.7E-07	2.9E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(a)pyrene	0.125	mg/kg	7.3E-07	(mg/kg/day)	7.3E+00	$(mg/kg/day)^{-1}$	5.3E-06	1.6E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(b)fluoranthene	0.184	mg/kg	1.1E-06	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	7.9E-07	2.4E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Dibenzo(a,h)anthracene	0.026	mg/kg	1.5E-07	(mg/kg/day)	7.3E+00	$(mg/kg/day)^{-1}$	1.1E-06	3.3E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Indeno(1,2,3-cd)pyrene	0.084	mg/kg	4.9E-07	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	3.6E-07	1.1E-06	(mg/kg/day)	NA	(mg/kg/day)	--
			Exp. Route Total								8.6E-06					--
			Dermal	Benzo(a)anthracene	0.228	mg/kg	4.9E-07	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	3.5E-07	1.1E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(a)pyrene	0.125	mg/kg	2.7E-07	(mg/kg/day)	7.3E+00	$(mg/kg/day)^{-1}$	1.9E-06	5.8E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(b)fluoranthene	0.184	mg/kg	3.9E-07	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	2.9E-07	8.6E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Dibenzo(a,h)anthracene	0.026	mg/kg	5.5E-08	(mg/kg/day)	7.3E+00	$(mg/kg/day)^{-1}$	4.0E-07	1.2E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Indeno(1,2,3-cd)pyrene	0.084	mg/kg	1.8E-07	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	1.3E-07	3.9E-07	(mg/kg/day)	NA	(mg/kg/day)	--
			Exp. Route Total								3.1E-06					--
		Exposure Point Total									1.2E-05					--
	Exposure Medium Total										1.2E-05					--
	Air	Site 2	Inhalation	Benzo(a)anthracene	1.9E-10	mg/m^3	8.3E-11	(mg/m^3)	1.1E-04	$(ug/m^3)^{-1}$	9.1E-12	1.8E-10	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(a)pyrene	1.0E-10	mg/m^3	4.5E-11	(mg/m^3)	1.1E-03	$(ug/m^3)^{-1}$	5.0E-11	9.9E-11	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(b)fluoranthene	1.5E-10	mg/m^3	6.7E-11	(mg/m^3)	1.1E-04	$(ug/m^3)^{-1}$	7.3E-12	1.5E-10	(mg/m^3)	NA	(mg/m^3)	--
				Dibenzo(a,h)anthracene	2.1E-11	mg/m^3	9.4E-12	(mg/m^3)	1.2E-03	$(ug/m^3)^{-1}$	1.1E-11	2.1E-11	(mg/m^3)	NA	(mg/m^3)	--
				Indeno(1,2,3-cd)pyrene	6.9E-11	mg/m^3	3.0E-11	(mg/m^3)	1.1E-04	$(ug/m^3)^{-1}$	3.3E-12	6.7E-11	(mg/m^3)	NA	(mg/m^3)	--
			Exp. Route Total								8.1E-11					--
		Exposure Point Total									8.1E-11					--
	Exposure Medium Total										8.1E-11					--
Medium Total											1.2E-05					--
Groundwater	Groundwater	Site 2	Ingestion	1,4-Dichlorobenzene	1.30	ug/L	7.1E-06	(mg/kg/day)	5.4E-03	$(mg/kg/day)^{-1}$	3.8E-08	8.3E-05	(mg/kg/day)	7.0E-02	(mg/kg/day)	0.001
				Chloroform	0.545	ug/L	3.0E-06	(mg/kg/day)	3.1E-02	$(mg/kg/day)^{-1}$	9.3E-08	3.5E-05	(mg/kg/day)	1.0E-02	(mg/kg/day)	0.003
				cis-1,2-Dichloroethene	0.892	ug/L	4.9E-06	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	- -	5.7E-05	(mg/kg/day)	2.0E-03	(mg/kg/day)	0.03
				Ethylbenzene	4.80	ug/L	2.6E-05	(mg/kg/day)	1.1E-02	$(mg/kg/day)^{-1}$	2.9E-07	3.1E-04	(mg/kg/day)	1.0E-01	(mg/kg/day)	0.003
				m+p-Xylenes	7.80	ug/L	4.3E-05	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	- -	5.0E-04	(mg/kg/day)	2.0E-01	(mg/kg/day)	0.002
				o-Xylene	16.0	ug/L	8.8E-05	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	- -	1.0E-03	(mg/kg/day)	2.0E-01	(mg/kg/day)	0.005
				Trichloroethene (Mutagenic)	1.91	ug/L	5.6E-05	(mg/kg/day)	9.3E-03	$(mg/kg/day)^{-1}$	5.2E-07	1.2E-04	(mg/kg/day)	NA	(mg/kg/day)	--
				Trichloroethene (Nonmutagenic	1.91	ug/L	1.0E-05	(mg/kg/day)	3.7E-02	$(mg/kg/day)^{-1}$	3.8E-07	1.2E-04	(mg/kg/day)	5.0E-04	(mg/kg/day)	0.2
				Vinyl Chloride	1.80	ug/L	1.3E-04	(mg/kg/day)	7.2E-01	$(mg/kg/day)^{-1}$	9.4E-05	1.2E-04	(mg/kg/day)	3.0E-03	(mg/kg/day)	0.04
			Exp. Route Total								9.5E-05					0.3
			Dermal	1,4-Dichlorobenzene	1.30	ug/L	4.6E-06	(mg/kg/day)	5.4E-03	$(mg/kg/day)^{-1}$	2.5E-08	5.4E-05	(mg/kg/day)	7.0E-02	(mg/kg/day)	0.0008
				Chloroform	0.545	ug/L	2.6E-07	(mg/kg/day)	3.1E-02	$(mg/kg/day)^{-1}$	8.1E-09	3.1E-06	(mg/kg/day)	1.0E-02	(mg/kg/day)	0.0003
				cis-1,2-Dichloroethene	0.892	ug/L	6.0E-07	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	- -	7.1E-06	(mg/kg/day)	2.0E-03	(mg/kg/day)	0.004
				Ethylbenzene	4.80	ug/L	1.5E-05	(mg/kg/day)	1.1E-02	$(mg/kg/day)^{-1}$	1.7E-07	1.8E-04	(mg/kg/day)	1.0E-01	(mg/kg/day)	0.002
				m+p-Xylenes	7.80	ug/L	2.7E-05	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	- -	3.1E-04	(mg/kg/day)	2.0E-01	(mg/kg/day)	0.002
				o-Xylene	16.0	ug/L	4.9E-05	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	- -	5.7E-04	(mg/kg/day)	2.0E-01	(mg/kg/day)	0.003
				Trichloroethene (Mutagenic)	1.91	ug/L	9.0E-06	(mg/kg/day)	9.3E-03	$(mg/kg/day)^{-1}$	8.4E-08	2.0E-05	(mg/kg/day)	NA	(mg/kg/day)	--
				Trichloroethene (Nonmutagenic	1.91	ug/L	1.7E-06	(mg/kg/day)	3.7E-02	$(mg/kg/day)^{-1}$	6.2E-08	2.0E-05	(mg/kg/day)	5.0E-04	(mg/kg/day)	0.04
				Vinyl Chloride	1.80	ug/L	7.0E-06	(mg/kg/day)	7.2E-01	$(mg/kg/day)^{-1}$	5.1E-06	6.2E-06	(mg/kg/day)	3.0E-03	(mg/kg/day)	0.002
			Exp. Route Total								5.4E-06					0.05
		Exposure Point Total									1.0E-04					0.4
	Exposure Medium Total										1.0E-04					0.4
	Air	Site 2	Inhalation	1,4-Dichlorobenzene	6.5E-4	mg/m^3	5.3E-05	(mg/m^3)	1.1E-05	$(ug/m^3)^{-1}$	5.9E-07	6.2E-04	(mg/m^3)	8.0E-01	(mg/m^3)	0.0008
				Chloroform	2.7E-4	mg/m^3	2.2E-05	(mg/m^3)	2.3E-05	$(ug/m^3)^{-1}$	5.2E-07	2.6E-04	(mg/m^3)	9.8E-02	(mg/m^3)	0.003
				cis-1,2-Dichloroethene	4.5E-4	mg/m^3	3.7E-05	(mg/m^3)	NA	$(ug/m^3)^{-1}$	- -	4.3E-04	(mg/m^3)	NA	(mg/m^3)	--
				Ethylbenzene	0.002	mg/m^3	2.0E-04	(mg/m^3)	2.5E-06	$(ug/m^3)^{-1}$	4.9E-07	2.3E-03	(mg/m^3)	1.0E+00	(mg/m^3)	0.002
				m+p-Xylenes	0.004	mg/m^3	3.2E-04	(mg/m^3)	NA	$(ug/m^3)^{-1}$	- -	3.7E-03	(mg/m^3)	4.0E-01	(mg/m^3)	0.009
				o-Xylene	0.008	mg/m^3	6.6E-04	(mg/m^3)	NA	$(ug/m^3)^{-1}$	- -	7.7E-03	(mg/m^3)	4.0E-01	(mg/m^3)	0.02
				Trichloroethene (Mutagenic)	9.6E-4	mg/m^3	4.2E-04	(mg/m^3)	1.0E-06	$(ug/m^3)^{-1}$	4.2E-07	9.2E-04	(mg/m^3)	NA	(mg/m^3)	--
				Trichloroethene (Nonmutagenic	9.6E-4	mg/m^3	7.8E-05	(mg/m^3)	3.1E-06	$(ug/m^3)^{-1}$	2.4E-07	9.2E-04	(mg/m^3)	2.0E-03	(mg/m^3)	0.5
				Vinyl Chloride	9.0E-4	mg/m^3	9.7E-04	(mg/m^3)	4.4E-06	$(ug/m^3)^{-1}$	4.3E-06	8.6E-04	(mg/m^3)	1.0E-01	(mg/m^3)	0.009
			Exp. Route Total								6.5E-06					0.5
		Exposure Point Total									6.5E-06					0.5
	Exposure Medium Total										6.5E-06					0.5
Medium Total											1.1E-04					0.9
										Total of Receptor Risks Across All Media	1.2E-04				Total of Receptor Hazards Across All Media	0.9

Notes:
1 - Mutagenic chemicals were evaluated in accordance with USEPA's Supplemental Guidance for Assessing Susceptibility from Early-Life Exposure to Carcinogens (2005).

TABLE 7.6.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURES
NWIRP CALVERTON, CALVERTON, NEW YORK

Scenario Timeframe: Hypothetical
Receptor Population: Residents
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Surface/Subsurface Soil	Surface/Subsurface Soil	Site 2	Ingestion	Benzo(a)anthracene	0.228	mg/kg	2.0E-07	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	1.4E-07	3.1E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(a)pyrene	0.125	mg/kg	1.1E-07	(mg/kg/day)	7.3E+00	(mg/kg/day)$^{-1}$	7.9E-07	1.7E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(b)fluoranthene	0.184	mg/kg	1.6E-07	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	1.2E-07	2.5E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Dibenzo(a,h)anthracene	0.026	mg/kg	2.2E-08	(mg/kg/day)	7.3E+00	(mg/kg/day)$^{-1}$	1.6E-07	3.6E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Indeno(1,2,3-cd)pyrene	0.084	mg/kg	7.2E-08	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	5.3E-08	1.2E-07	(mg/kg/day)	NA	(mg/kg/day)	--
			Exp. Route Total								1.3E-06					--
			Dermal	Benzo(a)anthracene	0.228	mg/kg	1.0E-07	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	7.4E-08	1.6E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(a)pyrene	0.125	mg/kg	5.6E-08	(mg/kg/day)	7.3E+00	(mg/kg/day)$^{-1}$	4.1E-07	8.9E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(b)fluoranthene	0.184	mg/kg	8.2E-08	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	6.0E-08	1.3E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Dibenzo(a,h)anthracene	0.026	mg/kg	1.2E-08	(mg/kg/day)	7.3E+00	(mg/kg/day)$^{-1}$	8.5E-08	1.8E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Indeno(1,2,3-cd)pyrene	0.084	mg/kg	3.8E-08	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	2.7E-08	6.0E-08	(mg/kg/day)	NA	(mg/kg/day)	--
			Exp. Route Total								6.5E-07					--
		Exposure Point Total									1.9E-06					--
	Exposure Medium Total										1.9E-06					--
	Air	Site 2	Inhalation	Benzo(a)anthracene	1.9E-10	mg/m^3	1.1E-10	(mg/m^3)	1.1E-04	(ug/m^3)$^{-1}$	1.2E-11	1.8E-10	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(a)pyrene	1.0E-10	mg/m^3	6.2E-11	(mg/m^3)	1.1E-03	(ug/m^3)$^{-1}$	6.8E-11	9.9E-11	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(b)fluoranthene	1.5E-10	mg/m^3	9.2E-11	(mg/m^3)	1.1E-04	(ug/m^3)$^{-1}$	1.0E-11	1.5E-10	(mg/m^3)	NA	(mg/m^3)	--
				Dibenzo(a,h)anthracene	2.1E-11	mg/m^3	1.3E-11	(mg/m^3)	1.2E-03	(ug/m^3)$^{-1}$	1.6E-11	2.1E-11	(mg/m^3)	NA	(mg/m^3)	--
				Indeno(1,2,3-cd)pyrene	6.9E-11	mg/m^3	4.2E-11	(mg/m^3)	1.1E-04	(ug/m^3)$^{-1}$	4.6E-12	6.7E-11	(mg/m^3)	NA	(mg/m^3)	--
			Exp. Route Total								1.1E-10					--
		Exposure Point Total									1.1E-10					--
	Exposure Medium Total										1.1E-10					--
Medium Total											1.9E-06					--
Groundwater	Groundwater	Site 2	Ingestion	1,4-Dichlorobenzene	1.30	ug/L	1.2E-05	(mg/kg/day)	5.4E-03	(mg/kg/day)$^{-1}$	6.6E-08	3.6E-05	(mg/kg/day)	7.0E-02	(mg/kg/day)	0.0005
				Chloroform	0.545	ug/L	5.1E-06	(mg/kg/day)	3.1E-02	(mg/kg/day)$^{-1}$	1.6E-07	1.5E-05	(mg/kg/day)	1.0E-02	(mg/kg/day)	0.001
				cis-1,2-Dichloroethene	0.892	ug/L	8.4E-06	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	2.4E-05	(mg/kg/day)	2.0E-03	(mg/kg/day)	0.01
				Ethylbenzene	4.80	ug/L	4.5E-05	(mg/kg/day)	1.1E-02	(mg/kg/day)$^{-1}$	5.0E-07	1.3E-04	(mg/kg/day)	1.0E-01	(mg/kg/day)	0.001
				m+p-Xylenes	7.80	ug/L	7.3E-05	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	2.1E-04	(mg/kg/day)	2.0E-01	(mg/kg/day)	0.001
				o-Xylene	16.0	ug/L	1.5E-04	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	4.4E-04	(mg/kg/day)	2.0E-01	(mg/kg/day)	0.002
				Trichloroethene (Mutagenic)	1.91	ug/L	3.3E-05	(mg/kg/day)	9.3E-03	(mg/kg/day)$^{-1}$	3.1E-07	5.2E-05	(mg/kg/day)	NA	(mg/kg/day)	--
				Trichloroethene (Nonmutagenic	1.91	ug/L	1.8E-05	(mg/kg/day)	3.7E-02	(mg/kg/day)$^{-1}$	6.6E-07	5.2E-05	(mg/kg/day)	5.0E-04	(mg/kg/day)	0.1
				Vinyl Chloride	1.80	ug/L	1.7E-05	(mg/kg/day)	7.2E-01	(mg/kg/day)$^{-1}$	1.2E-05	4.9E-05	(mg/kg/day)	3.0E-03	(mg/kg/day)	0.02
			Exp. Route Total								1.4E-05					0.1
			Dermal	1,4-Dichlorobenzene	1.30	ug/L	8.2E-06	(mg/kg/day)	5.4E-03	(mg/kg/day)$^{-1}$	4.4E-08	2.4E-05	(mg/kg/day)	7.0E-02	(mg/kg/day)	0.0003
				Chloroform	0.545	ug/L	4.7E-07	(mg/kg/day)	3.1E-02	(mg/kg/day)$^{-1}$	1.4E-08	1.4E-06	(mg/kg/day)	1.0E-02	(mg/kg/day)	0.0001
				cis-1,2-Dichloroethene	0.892	ug/L	1.0E-06	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	3.0E-06	(mg/kg/day)	2.0E-03	(mg/kg/day)	0.002
				Ethylbenzene	4.80	ug/L	2.7E-05	(mg/kg/day)	1.1E-02	(mg/kg/day)$^{-1}$	3.0E-07	7.9E-05	(mg/kg/day)	1.0E-01	(mg/kg/day)	0.0008
				m+p-Xylenes	7.80	ug/L	4.8E-05	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	1.4E-04	(mg/kg/day)	2.0E-01	(mg/kg/day)	0.0007
				o-Xylene	16.0	ug/L	8.5E-05	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	--	2.5E-04	(mg/kg/day)	2.0E-01	(mg/kg/day)	0.001
				Trichloroethene (Mutagenic)	1.91	ug/L	5.5E-06	(mg/kg/day)	9.3E-03	(mg/kg/day)$^{-1}$	5.1E-08	8.8E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Trichloroethene (Nonmutagenic	1.91	ug/L	3.0E-06	(mg/kg/day)	3.7E-02	(mg/kg/day)$^{-1}$	1.1E-07	8.8E-06	(mg/kg/day)	5.0E-04	(mg/kg/day)	0.02
				Vinyl Chloride	1.80	ug/L	9.0E-07	(mg/kg/day)	7.2E-01	(mg/kg/day)$^{-1}$	6.5E-07	2.6E-06	(mg/kg/day)	3.0E-03	(mg/kg/day)	0.0009
			Exp. Route Total								1.2E-06					0.02
		Exposure Point Total									1.5E-05					0.2
	Exposure Medium Total										1.5E-05					0.2
	Air	Site 2	Inhalation	1,4-Dichlorobenzene	6.5E-4	mg/m^3	2.1E-04	(mg/m^3)	1.1E-05	(ug/m^3)$^{-1}$	2.4E-06	6.2E-04	(mg/m^3)	8.0E-01	(mg/m^3)	0.0008
				Chloroform	2.7E-4	mg/m^3	9.0E-05	(mg/m^3)	2.3E-05	(ug/m^3)$^{-1}$	2.1E-06	2.6E-04	(mg/m^3)	9.8E-02	(mg/m^3)	0.003
				cis-1,2-Dichloroethene	4.5E-4	mg/m^3	1.5E-04	(mg/m^3)	NA	(ug/m^3)$^{-1}$	--	4.3E-04	(mg/m^3)	NA	(mg/m^3)	--
				Ethylbenzene	0.002	mg/m^3	7.9E-04	(mg/m^3)	2.5E-06	(ug/m^3)$^{-1}$	2.0E-06	2.3E-03	(mg/m^3)	1.0E+00	(mg/m^3)	0.002
				m+p-Xylenes	0.004	mg/m^3	1.3E-03	(mg/m^3)	NA	(ug/m^3)$^{-1}$	--	3.7E-03	(mg/m^3)	4.0E-01	(mg/m^3)	0.009
				o-Xylene	0.008	mg/m^3	2.6E-03	(mg/m^3)	NA	(ug/m^3)$^{-1}$	--	7.7E-03	(mg/m^3)	4.0E-01	(mg/m^3)	0.02
				Trichloroethene (Mutagenic)	9.6E-4	mg/m^3	5.8E-04	(mg/m^3)	1.0E-06	(ug/m^3)$^{-1}$	5.8E-07	9.2E-04	(mg/m^3)	NA	(mg/m^3)	--
				Trichloroethene (Nonmutagenic	9.6E-4	mg/m^3	3.1E-04	(mg/m^3)	3.1E-06	(ug/m^3)$^{-1}$	9.7E-07	9.2E-04	(mg/m^3)	2.0E-03	(mg/m^3)	0.5
				Vinyl Chloride	9.0E-4	mg/m^3	3.0E-04	(mg/m^3)	4.4E-06	(ug/m^3)$^{-1}$	1.3E-06	8.6E-04	(mg/m^3)	1.0E-01	(mg/m^3)	0.009
			Exp. Route Total								9.2E-06					0.5
		Exposure Point Total									9.2E-06					0.5
	Exposure Medium Total										9.2E-06					0.5
Medium Total											2.4E-05					0.7
										Total of Receptor Risks Across All Media	2.6E-05				Total of Receptor Hazards Across All Media	0.7

Notes:
1 - Mutagenic chemicals were evaluated in accordance with USEPA's Supplemental Guidance for Assessing Susceptibility from Early-Life Exposure to Carcinogens (2005).

TABLE 7.1.CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURES
NWIRP CALVERTON, CALVERTON, NEW YORK

Scenario Timeframe: Future
Receptor Population: Construction Workers
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Surface/Subsurface Soil	Surface/Subsurface Soil	Site 2	Ingestion	Benzo(a)anthracene	0.228	mg/kg	2.6E-09	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	1.9E-09	1.8E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(a)pyrene	0.125	mg/kg	1.4E-09	(mg/kg/day)	7.3E+00	$(mg/kg/day)^{-1}$	1.1E-08	1.0E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(b)fluoranthene	0.184	mg/kg	2.1E-09	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	1.5E-09	1.5E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Dibenzo(a,h)anthracene	0.026	mg/kg	3.0E-10	(mg/kg/day)	7.3E+00	$(mg/kg/day)^{-1}$	2.2E-09	2.1E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Indeno(1,2,3-cd)pyrene	0.084	mg/kg	9.7E-10	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	7.1E-10	6.8E-08	(mg/kg/day)	NA	(mg/kg/day)	--
			Exp. Route Total								1.7E-08					--
			Dermal	Benzo(a)anthracene	0.228	mg/kg	6.8E-10	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	5.0E-10	4.8E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(a)pyrene	0.125	mg/kg	3.7E-10	(mg/kg/day)	7.3E+00	$(mg/kg/day)^{-1}$	2.7E-09	2.6E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(b)fluoranthene	0.184	mg/kg	5.5E-10	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	4.0E-10	3.9E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Dibenzo(a,h)anthracene	0.026	mg/kg	7.8E-11	(mg/kg/day)	7.3E+00	$(mg/kg/day)^{-1}$	5.7E-10	5.5E-09	(mg/kg/day)	NA	(mg/kg/day)	--
				Indeno(1,2,3-cd)pyrene	0.084	mg/kg	2.5E-10	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	1.8E-10	1.8E-08	(mg/kg/day)	NA	(mg/kg/day)	--
			Exp. Route Total								4.4E-09					--
		Exposure Point Total									2.1E-08					--
	Exposure Medium Total										2.1E-08					--
	Air	Site 2	Inhalation	Benzo(a)anthracene	1.6E-7	mg/m^3	2.7E-10	(mg/m^3)	1.1E-04	$(ug/m^3)^{-1}$	2.9E-11	1.9E-08	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(a)pyrene	8.9E-8	mg/m^3	1.5E-10	(mg/m^3)	1.1E-03	$(ug/m^3)^{-1}$	1.6E-10	1.0E-08	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(b)fluoranthene	1.3E-7	mg/m^3	2.1E-10	(mg/m^3)	1.1E-04	$(ug/m^3)^{-1}$	2.4E-11	1.5E-08	(mg/m^3)	NA	(mg/m^3)	--
				Dibenzo(a,h)anthracene	1.9E-8	mg/m^3	3.0E-11	(mg/m^3)	1.2E-03	$(ug/m^3)^{-1}$	3.6E-11	2.1E-09	(mg/m^3)	NA	(mg/m^3)	--
				Indeno(1,2,3-cd)pyrene	6.0E-8	mg/m^3	9.8E-11	(mg/m^3)	1.1E-04	$(ug/m^3)^{-1}$	1.1E-11	6.8E-09	(mg/m^3)	NA	(mg/m^3)	--
			Exp. Route Total								2.6E-10					--
		Exposure Point Total									2.6E-10					--
	Exposure Medium Total										2.6E-10					--
Medium Total											2.2E-08					--
Groundwater	Groundwater	Site 2	Dermal	1,4-Dichlorobenzene	1.30	ug/L	1.0E-08	(mg/kg/day)	5.4E-03	$(mg/kg/day)^{-1}$	5.5E-11	7.1E-07	(mg/kg/day)	7.0E-02	(mg/kg/day)	0.00001
				Chloroform	0.545	ug/L	6.1E-10	(mg/kg/day)	3.1E-02	$(mg/kg/day)^{-1}$	1.9E-11	4.3E-08	(mg/kg/day)	1.0E-01	(mg/kg/day)	4.3E-7
				cis-1,2-Dichloroethene	0.892	ug/L	1.4E-09	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	- -	1.0E-07	(mg/kg/day)	2.0E-02	(mg/kg/day)	0.000005
				Ethylbenzene	4.80	ug/L	3.5E-08	(mg/kg/day)	1.1E-02	$(mg/kg/day)^{-1}$	3.8E-10	2.4E-06	(mg/kg/day)	1.0E-01	(mg/kg/day)	0.00002
				m+p-Xylenes	7.80	ug/L	6.1E-08	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	- -	4.3E-06	(mg/kg/day)	4.0E-01	(mg/kg/day)	0.00001
				o-Xylene	16.0	ug/L	1.1E-07	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	- -	7.6E-06	(mg/kg/day)	4.0E-01	(mg/kg/day)	0.00002
				Trichloroethene	1.91	ug/L	3.8E-09	(mg/kg/day)	4.6E-02	$(mg/kg/day)^{-1}$	1.8E-10	2.7E-07	(mg/kg/day)	5.0E-04	(mg/kg/day)	0.0005
				Vinyl Chloride	1.80	ug/L	1.4E-09	(mg/kg/day)	7.2E-01	$(mg/kg/day)^{-1}$	9.8E-10	9.6E-08	(mg/kg/day)	NA	(mg/kg/day)	--
			Exp. Route Total								1.6E-09					0.0006
		Exposure Point Total									1.6E-09					0.0006
	Exposure Medium Total										1.6E-09					0.0006
	Air	Site 2	Inhalation	1,4-Dichlorobenzene	3.9E-5	mg/m^3	1.9E-09	(mg/m^3)	1.1E-05	$(ug/m^3)^{-1}$	2.1E-11	1.3E-07	(mg/m^3)	1.2E+00	(mg/m^3)	1.1E-7
				Chloroform	1.8E-5	mg/m^3	8.9E-10	(mg/m^3)	2.3E-05	$(ug/m^3)^{-1}$	2.1E-11	6.3E-08	(mg/m^3)	2.4E-01	(mg/m^3)	2.6E-7
				cis-1,2-Dichloroethene	3.3E-5	mg/m^3	1.6E-09	(mg/m^3)	NA	$(ug/m^3)^{-1}$	- -	1.1E-07	(mg/m^3)	NA	(mg/m^3)	--
				Ethylbenzene	1.7E-4	mg/m^3	8.4E-09	(mg/m^3)	2.5E-06	$(ug/m^3)^{-1}$	2.1E-11	5.9E-07	(mg/m^3)	9.0E+00	(mg/m^3)	6.5E-8
				m+p-Xylenes	2.8E-4	mg/m^3	1.4E-08	(mg/m^3)	NA	$(ug/m^3)^{-1}$	- -	9.6E-07	(mg/m^3)	4.0E-01	(mg/m^3)	0.000002
				o-Xylene	5.7E-4	mg/m^3	2.8E-08	(mg/m^3)	NA	$(ug/m^3)^{-1}$	- -	2.0E-06	(mg/m^3)	4.0E-01	(mg/m^3)	0.000005
				Trichloroethene	6.2E-5	mg/m^3	3.0E-09	(mg/m^3)	4.1E-06	$(ug/m^3)^{-1}$	1.2E-11	2.1E-07	(mg/m^3)	5.4E-01	(mg/m^3)	3.9E-7
				Vinyl Chloride	8.4E-5	mg/m^3	4.1E-09	(mg/m^3)	4.4E-06	$(ug/m^3)^{-1}$	1.8E-11	2.9E-07	(mg/m^3)	7.7E-02	(mg/m^3)	0.000004
			Exp. Route Total								9.3E-11					0.00001
		Exposure Point Total									9.3E-11					0.00001
	Exposure Medium Total										9.3E-11					0.00001
Medium Total											1.7E-09					0.0006
										Total of Receptor Risks Across All Media	2.3E-08				Total of Receptor Hazards Across All Media	0.0006

TABLE 7.2.CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURES
NWIRP CALVERTON, CALVERTON, NEW YORK

Scenario Timeframe: Future
Receptor Population: Industrial Workers
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Surface/Subsurface Soil	Surface/Subsurface Soil	Site 2	Ingestion	Benzo(a)anthracene	0.228	mg/kg	1.3E-08	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	9.2E-09	9.8E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(a)pyrene	0.125	mg/kg	6.9E-09	(mg/kg/day)	7.3E+00	$(mg/kg/day)^{-1}$	5.0E-08	5.4E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(b)fluoranthene	0.184	mg/kg	1.0E-08	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	7.4E-09	7.9E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Dibenzo(a,h)anthracene	0.026	mg/kg	1.4E-09	(mg/kg/day)	7.3E+00	$(mg/kg/day)^{-1}$	1.0E-08	1.1E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Indeno(1,2,3-cd)pyrene	0.084	mg/kg	4.6E-09	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	3.4E-09	3.6E-08	(mg/kg/day)	NA	(mg/kg/day)	--
			Exp. Route Total								8.1E-08					--
			Dermal	Benzo(a)anthracene	0.228	mg/kg	2.2E-09	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	1.6E-09	1.7E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(a)pyrene	0.125	mg/kg	1.2E-09	(mg/kg/day)	7.3E+00	$(mg/kg/day)^{-1}$	8.6E-09	9.2E-09	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(b)fluoranthene	0.184	mg/kg	1.7E-09	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	1.3E-09	1.4E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Dibenzo(a,h)anthracene	0.026	mg/kg	2.5E-10	(mg/kg/day)	7.3E+00	$(mg/kg/day)^{-1}$	1.8E-09	1.9E-09	(mg/kg/day)	NA	(mg/kg/day)	--
				Indeno(1,2,3-cd)pyrene	0.084	mg/kg	7.9E-10	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	5.8E-10	6.2E-09	(mg/kg/day)	NA	(mg/kg/day)	--
			Exp. Route Total								1.4E-08					--
		Exposure Point Total									9.5E-08					--
	Exposure Medium Total										9.5E-08					--
	Air	Site 2	Inhalation	Benzo(a)anthracene	1.9E-10	mg/m^3	4.8E-12	(mg/m^3)	1.1E-04	$(ug/m^3)^{-1}$	5.3E-13	3.8E-11	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(a)pyrene	1.0E-10	mg/m^3	2.7E-12	(mg/m^3)	1.1E-03	$(ug/m^3)^{-1}$	2.9E-12	2.1E-11	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(b)fluoranthene	1.5E-10	mg/m^3	3.9E-12	(mg/m^3)	1.1E-04	$(ug/m^3)^{-1}$	4.3E-13	3.0E-11	(mg/m^3)	NA	(mg/m^3)	--
				Dibenzo(a,h)anthracene	2.1E-11	mg/m^3	5.5E-13	(mg/m^3)	1.2E-03	$(ug/m^3)^{-1}$	6.6E-13	4.3E-12	(mg/m^3)	NA	(mg/m^3)	--
				Indeno(1,2,3-cd)pyrene	6.9E-11	mg/m^3	1.8E-12	(mg/m^3)	1.1E-04	$(ug/m^3)^{-1}$	2.0E-13	1.4E-11	(mg/m^3)	NA	(mg/m^3)	--
			Exp. Route Total								4.7E-12					--
		Exposure Point Total									4.7E-12					--
	Exposure Medium Total										4.7E-12					--
Medium Total											9.5E-08					--
										Total of Receptor Risks Across All Media	9.5E-08				Total of Receptor Hazards Across All Media	--

TABLE 7.3.CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURES
NWIRP CALVERTON, CALVERTON, NEW YORK

Scenario Timeframe: Future
Receptor Population: Recreational Users
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Surface/Subsurface Soil	Surface/Subsurface Soil	Site 2	Ingestion	Benzo(a)anthracene	0.228	mg/kg	1.0E-08	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	7.3E-09	5.4E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(a)pyrene	0.125	mg/kg	5.5E-09	(mg/kg/day)	7.3E+00	$(mg/kg/day)^{-1}$	4.0E-08	3.0E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(b)fluoranthene	0.184	mg/kg	8.1E-09	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	5.9E-09	4.4E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Dibenzo(a,h)anthracene	0.026	mg/kg	1.1E-09	(mg/kg/day)	7.3E+00	$(mg/kg/day)^{-1}$	8.4E-09	6.2E-09	(mg/kg/day)	NA	(mg/kg/day)	--
				Indeno(1,2,3-cd)pyrene	0.084	mg/kg	3.7E-09	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	2.7E-09	2.0E-08	(mg/kg/day)	NA	(mg/kg/day)	--
			Exp. Route Total								6.5E-08					--
			Dermal	Benzo(a)anthracene	0.228	mg/kg	2.9E-09	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	2.1E-09	1.6E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(a)pyrene	0.125	mg/kg	1.6E-09	(mg/kg/day)	7.3E+00	$(mg/kg/day)^{-1}$	1.2E-08	8.6E-09	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(b)fluoranthene	0.184	mg/kg	2.4E-09	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	1.7E-09	1.3E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Dibenzo(a,h)anthracene	0.026	mg/kg	3.3E-10	(mg/kg/day)	7.3E+00	$(mg/kg/day)^{-1}$	2.4E-09	1.8E-09	(mg/kg/day)	NA	(mg/kg/day)	--
				Indeno(1,2,3-cd)pyrene	0.084	mg/kg	1.1E-09	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	7.9E-10	5.8E-09	(mg/kg/day)	NA	(mg/kg/day)	--
			Exp. Route Total								1.9E-08					--
		Exposure Point Total									8.3E-08					--
	Exposure Medium Total										8.3E-08					--
	Air	Site 2	Inhalation	Benzo(a)anthracene	1.9E-7	mg/m^3	2.1E-10	(mg/m^3)	1.1E-04	$(ug/m^3)^{-1}$	2.3E-11	1.1E-09	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(a)pyrene	1.0E-7	mg/m^3	1.1E-10	(mg/m^3)	1.1E-03	$(ug/m^3)^{-1}$	1.3E-10	6.1E-10	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(b)fluoranthene	1.5E-7	mg/m^3	1.7E-10	(mg/m^3)	1.1E-04	$(ug/m^3)^{-1}$	1.8E-11	9.0E-10	(mg/m^3)	NA	(mg/m^3)	--
				Dibenzo(a,h)anthracene	2.1E-8	mg/m^3	2.4E-11	(mg/m^3)	1.2E-03	$(ug/m^3)^{-1}$	2.8E-11	1.3E-10	(mg/m^3)	NA	(mg/m^3)	--
				Indeno(1,2,3-cd)pyrene	6.9E-8	mg/m^3	7.7E-11	(mg/m^3)	1.1E-04	$(ug/m^3)^{-1}$	8.4E-12	4.1E-10	(mg/m^3)	NA	(mg/m^3)	--
			Exp. Route Total								2.0E-10					--
		Exposure Point Total									2.0E-10					--
	Exposure Medium Total										2.0E-10					--
Medium Total											8.4E-08					--
										Total of Receptor Risks Across All Media	8.4E-08				Total of Receptor Hazards Across All Media	--

Notes:
1 - Mutagenic chemicals were evaluated in accordance with USEPA's Supplemental Guidance for Assessing Susceptibility from Early-Life Exposure to Carcinogens (2005).

TABLE 7.4.CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURES
NWIRP CALVERTON, CALVERTON, NEW YORK

Scenario Timeframe: Future
Receptor Population: Recreational Users
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Surface/Subsurface Soil	Surface/Subsurface Soil	Site 2	Ingestion	Benzo(a)anthracene	0.228	mg/kg	9.1E-10	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	6.7E-10	5.8E-09	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(a)pyrene	0.125	mg/kg	5.0E-10	(mg/kg/day)	7.3E+00	$(mg/kg/day)^{-1}$	3.6E-09	3.2E-09	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(b)fluoranthene	0.184	mg/kg	7.4E-10	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	5.4E-10	4.7E-09	(mg/kg/day)	NA	(mg/kg/day)	--
				Dibenzo(a,h)anthracene	0.026	mg/kg	1.0E-10	(mg/kg/day)	7.3E+00	$(mg/kg/day)^{-1}$	7.6E-10	6.6E-10	(mg/kg/day)	NA	(mg/kg/day)	--
				Indeno(1,2,3-cd)pyrene	0.084	mg/kg	3.4E-10	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	2.5E-10	2.1E-09	(mg/kg/day)	NA	(mg/kg/day)	--
			Exp. Route Total								5.9E-09					--
			Dermal	Benzo(a)anthracene	0.228	mg/kg	2.7E-10	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	2.0E-10	1.7E-09	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(a)pyrene	0.125	mg/kg	1.5E-10	(mg/kg/day)	7.3E+00	$(mg/kg/day)^{-1}$	1.1E-09	9.4E-10	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(b)fluoranthene	0.184	mg/kg	2.2E-10	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	1.6E-10	1.4E-09	(mg/kg/day)	NA	(mg/kg/day)	--
				Dibenzo(a,h)anthracene	0.026	mg/kg	3.1E-11	(mg/kg/day)	7.3E+00	$(mg/kg/day)^{-1}$	2.2E-10	2.0E-10	(mg/kg/day)	NA	(mg/kg/day)	--
				Indeno(1,2,3-cd)pyrene	0.084	mg/kg	1.0E-10	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	7.3E-11	6.3E-10	(mg/kg/day)	NA	(mg/kg/day)	--
			Exp. Route Total								1.7E-09					--
		Exposure Point Total									7.6E-09					--
	Exposure Medium Total										7.6E-09					--
	Air	Site 2	Inhalation	Benzo(a)anthracene	1.9E-10	mg/m^3	1.8E-13	(mg/m^3)	1.1E-04	$(ug/m^3)^{-1}$	1.9E-14	1.1E-12	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(a)pyrene	1.0E-10	mg/m^3	9.6E-14	(mg/m^3)	1.1E-03	$(ug/m^3)^{-1}$	1.1E-13	6.1E-13	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(b)fluoranthene	1.5E-10	mg/m^3	1.4E-13	(mg/m^3)	1.1E-04	$(ug/m^3)^{-1}$	1.6E-14	9.0E-13	(mg/m^3)	NA	(mg/m^3)	--
				Dibenzo(a,h)anthracene	2.1E-11	mg/m^3	2.0E-14	(mg/m^3)	1.2E-03	$(ug/m^3)^{-1}$	2.4E-14	1.3E-13	(mg/m^3)	NA	(mg/m^3)	--
				Indeno(1,2,3-cd)pyrene	6.9E-11	mg/m^3	6.5E-14	(mg/m^3)	1.1E-04	$(ug/m^3)^{-1}$	7.1E-15	4.1E-13	(mg/m^3)	NA	(mg/m^3)	--
			Exp. Route Total								1.7E-13					--
		Exposure Point Total									1.7E-13					--
	Exposure Medium Total										1.7E-13					--
Medium Total											7.6E-09					--
										Total of Receptor Risks Across All Media	7.6E-09				Total of Receptor Hazards Across All Media	--

Notes:
1 - Mutagenic chemicals were evaluated in accordance with USEPA's Supplemental Guidance for Assessing Susceptibility from Early-Life Exposure to Carcinogens (2005).

TABLE 7.5.CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURES
NWIRP CALVERTON, CALVERTON, NEW YORK

Scenario Timeframe: Hypothetical
Receptor Population: Residents
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Surface/Subsurface Soil	Surface/Subsurface Soil	Site 2	Ingestion	Benzo(a)anthracene	0.228	mg/kg	1.8E-07	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	1.3E-07	9.7E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(a)pyrene	0.125	mg/kg	9.9E-08	(mg/kg/day)	7.3E+00	$(mg/kg/day)^{-1}$	7.2E-07	5.3E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(b)fluoranthene	0.184	mg/kg	1.5E-07	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	1.1E-07	7.9E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Dibenzo(a,h)anthracene	0.026	mg/kg	2.1E-08	(mg/kg/day)	7.3E+00	$(mg/kg/day)^{-1}$	1.5E-07	1.1E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Indeno(1,2,3-cd)pyrene	0.084	mg/kg	6.7E-08	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	4.9E-08	3.6E-07	(mg/kg/day)	NA	(mg/kg/day)	--
			Exp. Route Total								1.2E-06					--
			Dermal	Benzo(a)anthracene	0.228	mg/kg	2.6E-08	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	1.9E-08	1.4E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(a)pyrene	0.125	mg/kg	1.4E-08	(mg/kg/day)	7.3E+00	$(mg/kg/day)^{-1}$	1.1E-07	7.8E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(b)fluoranthene	0.184	mg/kg	2.1E-08	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	1.6E-08	1.1E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Dibenzo(a,h)anthracene	0.026	mg/kg	3.0E-09	(mg/kg/day)	7.3E+00	$(mg/kg/day)^{-1}$	2.2E-08	1.6E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Indeno(1,2,3-cd)pyrene	0.084	mg/kg	9.7E-09	(mg/kg/day)	7.3E-01	$(mg/kg/day)^{-1}$	7.1E-09	5.2E-08	(mg/kg/day)	NA	(mg/kg/day)	--
			Exp. Route Total								1.7E-07					--
		Exposure Point Total									1.3E-06					--
	Exposure Medium Total										1.3E-06					--
	Air	Site 2	Inhalation	Benzo(a)anthracene	1.9E-10	mg/m^3	2.2E-11	(mg/m^3)	1.1E-04	$(ug/m^3)^{-1}$	2.5E-12	1.2E-10	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(a)pyrene	1.0E-10	mg/m^3	1.2E-11	(mg/m^3)	1.1E-03	$(ug/m^3)^{-1}$	1.4E-11	6.6E-11	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(b)fluoranthene	1.5E-10	mg/m^3	1.8E-11	(mg/m^3)	1.1E-04	$(ug/m^3)^{-1}$	2.0E-12	9.7E-11	(mg/m^3)	NA	(mg/m^3)	--
				Dibenzo(a,h)anthracene	2.1E-11	mg/m^3	2.6E-12	(mg/m^3)	1.2E-03	$(ug/m^3)^{-1}$	3.1E-12	1.4E-11	(mg/m^3)	NA	(mg/m^3)	--
				Indeno(1,2,3-cd)pyrene	6.9E-11	mg/m^3	8.3E-12	(mg/m^3)	1.1E-04	$(ug/m^3)^{-1}$	9.1E-13	4.5E-11	(mg/m^3)	NA	(mg/m^3)	--
			Exp. Route Total								2.2E-11					--
		Exposure Point Total									2.2E-11					--
	Exposure Medium Total										2.2E-11					--
Medium Total											1.3E-06					--
Groundwater	Groundwater	Site 2	Ingestion	1,4-Dichlorobenzene	1.30	ug/L	1.0E-06	(mg/kg/day)	5.4E-03	$(mg/kg/day)^{-1}$	5.7E-09	3.7E-05	(mg/kg/day)	7.0E-02	(mg/kg/day)	0.0005
				Chloroform	0.545	ug/L	4.4E-07	(mg/kg/day)	3.1E-02	$(mg/kg/day)^{-1}$	1.4E-08	1.5E-05	(mg/kg/day)	1.0E-02	(mg/kg/day)	0.002
				cis-1,2-Dichloroethene	0.892	ug/L	7.2E-07	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	- -	2.5E-05	(mg/kg/day)	2.0E-03	(mg/kg/day)	0.01
				Ethylbenzene	4.80	ug/L	3.9E-06	(mg/kg/day)	1.1E-02	$(mg/kg/day)^{-1}$	4.3E-08	1.4E-04	(mg/kg/day)	1.0E-01	(mg/kg/day)	0.001
				m+p-Xylenes	7.80	ug/L	6.3E-06	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	- -	2.2E-04	(mg/kg/day)	2.0E-01	(mg/kg/day)	0.001
				o-Xylene	16.0	ug/L	1.3E-05	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	- -	4.5E-04	(mg/kg/day)	2.0E-01	(mg/kg/day)	0.002
				Trichloroethene (Mutagenic)	1.91	ug/L	1.0E-05	(mg/kg/day)	9.3E-03	$(mg/kg/day)^{-1}$	9.3E-08	5.4E-05	(mg/kg/day)	NA	(mg/kg/day)	--
				Trichloroethene (Nonmutagenic	1.91	ug/L	1.5E-06	(mg/kg/day)	3.7E-02	$(mg/kg/day)^{-1}$	5.6E-08	5.4E-05	(mg/kg/day)	5.0E-04	(mg/kg/day)	0.1
				Vinyl Chloride	1.80	ug/L	8.1E-05	(mg/kg/day)	7.2E-01	$(mg/kg/day)^{-1}$	5.8E-05	5.1E-05	(mg/kg/day)	3.0E-03	(mg/kg/day)	0.02
			Exp. Route Total								5.8E-05					0.1
			Dermal	1,4-Dichlorobenzene	1.30	ug/L	5.9E-07	(mg/kg/day)	5.4E-03	$(mg/kg/day)^{-1}$	3.2E-09	2.1E-05	(mg/kg/day)	7.0E-02	(mg/kg/day)	0.0003
				Chloroform	0.545	ug/L	3.4E-08	(mg/kg/day)	3.1E-02	$(mg/kg/day)^{-1}$	1.0E-09	1.2E-06	(mg/kg/day)	1.0E-02	(mg/kg/day)	0.0001
				cis-1,2-Dichloroethene	0.892	ug/L	7.5E-08	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	- -	2.6E-06	(mg/kg/day)	2.0E-03	(mg/kg/day)	0.001
				Ethylbenzene	4.80	ug/L	2.0E-06	(mg/kg/day)	1.1E-02	$(mg/kg/day)^{-1}$	2.2E-08	6.9E-05	(mg/kg/day)	1.0E-01	(mg/kg/day)	0.0007
				m+p-Xylenes	7.80	ug/L	3.4E-06	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	- -	1.2E-04	(mg/kg/day)	2.0E-01	(mg/kg/day)	0.0006
				o-Xylene	16.0	ug/L	6.1E-06	(mg/kg/day)	NA	$(mg/kg/day)^{-1}$	- -	2.1E-04	(mg/kg/day)	2.0E-01	(mg/kg/day)	0.001
				Trichloroethene (Mutagenic)	1.91	ug/L	1.4E-06	(mg/kg/day)	9.3E-03	$(mg/kg/day)^{-1}$	1.3E-08	7.6E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Trichloroethene (Nonmutagenic	1.91	ug/L	2.2E-07	(mg/kg/day)	3.7E-02	$(mg/kg/day)^{-1}$	8.0E-09	7.6E-06	(mg/kg/day)	5.0E-04	(mg/kg/day)	0.02
				Vinyl Chloride	1.80	ug/L	3.5E-06	(mg/kg/day)	7.2E-01	$(mg/kg/day)^{-1}$	2.5E-06	2.2E-06	(mg/kg/day)	3.0E-03	(mg/kg/day)	0.0007
			Exp. Route Total								2.6E-06					0.02
		Exposure Point Total									6.1E-05					0.2
	Exposure Medium Total										6.1E-05					0.2
	Air	Site 2	Inhalation	1,4-Dichlorobenzene	6.5E-4	mg/m^3	1.2E-05	(mg/m^3)	1.1E-05	$(ug/m^3)^{-1}$	1.3E-07	4.2E-04	(mg/m^3)	8.0E-01	(mg/m^3)	0.0005
				Chloroform	2.7E-4	mg/m^3	5.0E-06	(mg/m^3)	2.3E-05	$(ug/m^3)^{-1}$	1.1E-07	1.7E-04	(mg/m^3)	9.8E-02	(mg/m^3)	0.002
				cis-1,2-Dichloroethene	4.5E-4	mg/m^3	8.2E-06	(mg/m^3)	NA	$(ug/m^3)^{-1}$	- -	2.9E-04	(mg/m^3)	NA	(mg/m^3)	--
				Ethylbenzene	0.002	mg/m^3	4.4E-05	(mg/m^3)	2.5E-06	$(ug/m^3)^{-1}$	1.1E-07	1.5E-03	(mg/m^3)	1.0E+00	(mg/m^3)	0.002
				m+p-Xylenes	0.004	mg/m^3	7.1E-05	(mg/m^3)	NA	$(ug/m^3)^{-1}$	- -	2.5E-03	(mg/m^3)	4.0E-01	(mg/m^3)	0.006
				o-Xylene	0.008	mg/m^3	1.5E-04	(mg/m^3)	NA	$(ug/m^3)^{-1}$	- -	5.1E-03	(mg/m^3)	4.0E-01	(mg/m^3)	0.01
				Trichloroethene (Mutagenic)	9.6E-4	mg/m^3	1.1E-04	(mg/m^3)	1.0E-06	$(ug/m^3)^{-1}$	1.1E-07	6.1E-04	(mg/m^3)	NA	(mg/m^3)	--
				Trichloroethene (Nonmutagenic	9.6E-4	mg/m^3	1.7E-05	(mg/m^3)	3.1E-06	$(ug/m^3)^{-1}$	5.4E-08	6.1E-04	(mg/m^3)	2.0E-03	(mg/m^3)	0.3
				Vinyl Chloride	9.0E-4	mg/m^3	9.2E-04	(mg/m^3)	4.4E-06	$(ug/m^3)^{-1}$	4.0E-06	5.8E-04	(mg/m^3)	1.0E-01	(mg/m^3)	0.006
			Exp. Route Total								4.6E-06					0.3
		Exposure Point Total									4.6E-06					0.3
	Exposure Medium Total										4.6E-06					0.3
Medium Total											6.5E-05					0.5
										Total of Receptor Risks Across All Media	6.7E-05				Total of Receptor Hazards Across All Media	0.5

Notes:
1 - Mutagenic chemicals were evaluated in accordance with USEPA's Supplemental Guidance for Assessing Susceptibility from Early-Life Exposure to Carcinogens (2005).

TABLE 7.6.CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURES
NWIRP CALVERTON, CALVERTON, NEW YORK

Scenario Timeframe: Hypothetical
Receptor Population: Residents
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Surface/Subsurface Soil	Surface/Subsurface Soil	Site 2	Ingestion	Benzo(a)anthracene	0.228	mg/kg	1.6E-08	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	1.2E-08	1.0E-07	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(a)pyrene	0.125	mg/kg	9.0E-09	(mg/kg/day)	7.3E+00	(mg/kg/day)$^{-1}$	6.6E-08	5.7E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(b)fluoranthene	0.184	mg/kg	1.3E-08	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	9.7E-09	8.4E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Dibenzo(a,h)anthracene	0.026	mg/kg	1.9E-09	(mg/kg/day)	7.3E+00	(mg/kg/day)$^{-1}$	1.4E-08	1.2E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Indeno(1,2,3-cd)pyrene	0.084	mg/kg	6.0E-09	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	4.4E-09	3.8E-08	(mg/kg/day)	NA	(mg/kg/day)	--
			Exp. Route Total								1.1E-07					--
			Dermal	Benzo(a)anthracene	0.228	mg/kg	2.4E-09	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	1.8E-09	1.5E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(a)pyrene	0.125	mg/kg	1.3E-09	(mg/kg/day)	7.3E+00	(mg/kg/day)$^{-1}$	9.7E-09	8.5E-09	(mg/kg/day)	NA	(mg/kg/day)	--
				Benzo(b)fluoranthene	0.184	mg/kg	2.0E-09	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	1.4E-09	1.2E-08	(mg/kg/day)	NA	(mg/kg/day)	--
				Dibenzo(a,h)anthracene	0.026	mg/kg	2.8E-10	(mg/kg/day)	7.3E+00	(mg/kg/day)$^{-1}$	2.0E-09	1.8E-09	(mg/kg/day)	NA	(mg/kg/day)	--
				Indeno(1,2,3-cd)pyrene	0.084	mg/kg	9.0E-10	(mg/kg/day)	7.3E-01	(mg/kg/day)$^{-1}$	6.5E-10	5.7E-09	(mg/kg/day)	NA	(mg/kg/day)	--
			Exp. Route Total								1.6E-08					--
		Exposure Point Total									1.2E-07					--
	Exposure Medium Total										1.2E-07					--
	Air	Site 2	Inhalation	Benzo(a)anthracene	1.9E-10	mg/m^3	1.9E-11	(mg/m^3)	1.1E-04	(ug/m^3)$^{-1}$	2.1E-12	1.2E-10	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(a)pyrene	1.0E-10	mg/m^3	1.0E-11	(mg/m^3)	1.1E-03	(ug/m^3)$^{-1}$	1.1E-11	6.6E-11	(mg/m^3)	NA	(mg/m^3)	--
				Benzo(b)fluoranthene	1.5E-10	mg/m^3	1.5E-11	(mg/m^3)	1.1E-04	(ug/m^3)$^{-1}$	1.7E-12	9.7E-11	(mg/m^3)	NA	(mg/m^3)	--
				Dibenzo(a,h)anthracene	2.1E-11	mg/m^3	2.2E-12	(mg/m^3)	1.2E-03	(ug/m^3)$^{-1}$	2.6E-12	1.4E-11	(mg/m^3)	NA	(mg/m^3)	--
				Indeno(1,2,3-cd)pyrene	6.9E-11	mg/m^3	7.0E-12	(mg/m^3)	1.1E-04	(ug/m^3)$^{-1}$	7.7E-13	4.5E-11	(mg/m^3)	NA	(mg/m^3)	--
			Exp. Route Total								1.9E-11					--
		Exposure Point Total									1.9E-11					--
	Exposure Medium Total										1.9E-11					--
Medium Total											1.2E-07					--
Groundwater	Groundwater	Site 2	Ingestion	1,4-Dichlorobenzene	1.30	ug/L	1.7E-06	(mg/kg/day)	5.4E-03	(mg/kg/day)$^{-1}$	9.0E-09	1.7E-05	(mg/kg/day)	7.0E-02	(mg/kg/day)	0.0002
				Chloroform	0.545	ug/L	7.0E-07	(mg/kg/day)	3.1E-02	(mg/kg/day)$^{-1}$	2.2E-08	7.0E-06	(mg/kg/day)	1.0E-02	(mg/kg/day)	0.0007
				cis-1,2-Dichloroethene	0.892	ug/L	1.1E-06	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	- -	1.1E-05	(mg/kg/day)	2.0E-03	(mg/kg/day)	0.006
				Ethylbenzene	4.80	ug/L	6.2E-06	(mg/kg/day)	1.1E-02	(mg/kg/day)$^{-1}$	6.8E-08	6.2E-05	(mg/kg/day)	1.0E-01	(mg/kg/day)	0.0006
				m+p-Xylenes	7.80	ug/L	1.0E-05	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	- -	1.0E-04	(mg/kg/day)	2.0E-01	(mg/kg/day)	0.0005
				o-Xylene	16.0	ug/L	2.1E-05	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	- -	2.1E-04	(mg/kg/day)	2.0E-01	(mg/kg/day)	0.001
				Trichloroethene (Mutagenic)	1.91	ug/L	3.8E-06	(mg/kg/day)	9.3E-03	(mg/kg/day)$^{-1}$	3.6E-08	2.4E-05	(mg/kg/day)	NA	(mg/kg/day)	--
				Trichloroethene (Nonmutagenic	1.91	ug/L	2.4E-06	(mg/kg/day)	3.7E-02	(mg/kg/day)$^{-1}$	9.0E-08	2.4E-05	(mg/kg/day)	5.0E-04	(mg/kg/day)	0.05
				Vinyl Chloride	1.80	ug/L	2.3E-06	(mg/kg/day)	7.2E-01	(mg/kg/day)$^{-1}$	1.7E-06	2.3E-05	(mg/kg/day)	3.0E-03	(mg/kg/day)	0.008
			Exp. Route Total								1.9E-06					0.07
			Dermal	1,4-Dichlorobenzene	1.30	ug/L	1.0E-06	(mg/kg/day)	5.4E-03	(mg/kg/day)$^{-1}$	5.7E-09	1.0E-05	(mg/kg/day)	7.0E-02	(mg/kg/day)	0.0001
				Chloroform	0.545	ug/L	6.0E-08	(mg/kg/day)	3.1E-02	(mg/kg/day)$^{-1}$	1.9E-09	6.0E-07	(mg/kg/day)	1.0E-02	(mg/kg/day)	0.00006
				cis-1,2-Dichloroethene	0.892	ug/L	1.3E-07	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	- -	1.3E-06	(mg/kg/day)	2.0E-03	(mg/kg/day)	0.0007
				Ethylbenzene	4.80	ug/L	3.5E-06	(mg/kg/day)	1.1E-02	(mg/kg/day)$^{-1}$	3.8E-08	3.5E-05	(mg/kg/day)	1.0E-01	(mg/kg/day)	0.0003
				m+p-Xylenes	7.80	ug/L	6.1E-06	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	- -	6.1E-05	(mg/kg/day)	2.0E-01	(mg/kg/day)	0.0003
				o-Xylene	16.0	ug/L	1.1E-05	(mg/kg/day)	NA	(mg/kg/day)$^{-1}$	- -	1.1E-04	(mg/kg/day)	2.0E-01	(mg/kg/day)	0.0005
				Trichloroethene (Mutagenic)	1.91	ug/L	6.1E-07	(mg/kg/day)	9.3E-03	(mg/kg/day)$^{-1}$	5.6E-09	3.9E-06	(mg/kg/day)	NA	(mg/kg/day)	--
				Trichloroethene (Nonmutagenic	1.91	ug/L	3.9E-07	(mg/kg/day)	3.7E-02	(mg/kg/day)$^{-1}$	1.4E-08	3.9E-06	(mg/kg/day)	5.0E-04	(mg/kg/day)	0.008
				Vinyl Chloride	1.80	ug/L	1.1E-07	(mg/kg/day)	7.2E-01	(mg/kg/day)$^{-1}$	8.1E-08	1.1E-06	(mg/kg/day)	3.0E-03	(mg/kg/day)	0.0004
			Exp. Route Total								1.5E-07					0.01
		Exposure Point Total									2.0E-06					0.08
	Exposure Medium Total										2.0E-06					0.08
	Air	Site 2	Inhalation	1,4-Dichlorobenzene	6.5E-4	mg/m^3	4.2E-05	(mg/m^3)	1.1E-05	(ug/m^3)$^{-1}$	4.6E-07	4.2E-04	(mg/m^3)	8.0E-01	(mg/m^3)	0.0005
				Chloroform	2.7E-4	mg/m^3	1.7E-05	(mg/m^3)	2.3E-05	(ug/m^3)$^{-1}$	4.0E-07	1.7E-04	(mg/m^3)	9.8E-02	(mg/m^3)	0.002
				cis-1,2-Dichloroethene	4.5E-4	mg/m^3	2.9E-05	(mg/m^3)	NA	(ug/m^3)$^{-1}$	- -	2.9E-04	(mg/m^3)	NA	(mg/m^3)	--
				Ethylbenzene	0.002	mg/m^3	1.5E-04	(mg/m^3)	2.5E-06	(ug/m^3)$^{-1}$	3.8E-07	1.5E-03	(mg/m^3)	1.0E+00	(mg/m^3)	0.002
				m+p-Xylenes	0.004	mg/m^3	2.5E-04	(mg/m^3)	NA	(ug/m^3)$^{-1}$	- -	2.5E-03	(mg/m^3)	4.0E-01	(mg/m^3)	0.006
				o-Xylene	0.008	mg/m^3	5.1E-04	(mg/m^3)	NA	(ug/m^3)$^{-1}$	- -	5.1E-03	(mg/m^3)	4.0E-01	(mg/m^3)	0.01
				Trichloroethene (Mutagenic)	9.6E-4	mg/m^3	9.6E-05	(mg/m^3)	1.0E-06	(ug/m^3)$^{-1}$	9.6E-08	6.1E-04	(mg/m^3)	NA	(mg/m^3)	--
				Trichloroethene (Nonmutagenic	9.6E-4	mg/m^3	6.1E-05	(mg/m^3)	3.1E-06	(ug/m^3)$^{-1}$	1.9E-07	6.1E-04	(mg/m^3)	2.0E-03	(mg/m^3)	0.3
				Vinyl Chloride	9.0E-4	mg/m^3	5.8E-05	(mg/m^3)	4.4E-06	(ug/m^3)$^{-1}$	2.5E-07	5.8E-04	(mg/m^3)	1.0E-01	(mg/m^3)	0.006
			Exp. Route Total								1.8E-06					0.3
		Exposure Point Total									1.8E-06					0.3
	Exposure Medium Total										1.8E-06					0.3
Medium Total											3.8E-06					0.4
										Total of Receptor Risks Across All Media	3.9E-06				Total of Receptor Hazards Across All Media	0.4

Notes:
1 - Mutagenic chemicals were evaluated in accordance with USEPA's Supplemental Guidance for Assessing Susceptibility from Early-Life Exposure to Carcinogens (2005).

RAGS Part D Table 9

Summary of Receptor Risks and Hazards for COPCs

LIST OF TABLES
RAGS PART D TABLE 9
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs

Table No.

Reasonable Maximum Exposures

9.1.RME Construction Workers
9.2.RME Industrial Workers
9.3.RME Child Recreational Users
9.4.RME Adult Recreational Users
9.5.RME Lifelong Recreational Users
9.6.RME Child Residents
9.7.RME Adult Residents
9.8.RME Lifelong Residents

Central Tendency Exposures

9.1.CTE Construction Workers
9.2.CTE Industrial Workers
9.3.CTE Child Recreational Users
9.4.CTE Adult Recreational Users
9.5.CTE Lifelong Recreational Users
9.6.CTE Child Residents
9.7.CTE Adult Residents
9.8.CTE Lifelong Residents

TABLE 9.1.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURES
NWIRP CALVERTON, CALVERTON, NEW YORK

Scenario Timeframe: Future
Receptor Population: Construction Workers
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface/Subsurface Soil	Surface/Subsurface Soil	Site 2	Benzo(a)anthracene	8E-09	--	3E-09	--	1E-08	NA	--	--	--	--
			Benzo(a)pyrene	4E-08	--	2E-08	--	6E-08	NA	--	--	--	--
			Benzo(b)fluoranthene	6E-09	--	2E-09	--	9E-09	NA	--	--	--	--
			Dibenzo(a,h)anthracene	9E-09	--	3E-09	--	1E-08	NA	--	--	--	--
			Indeno(1,2,3-cd)pyrene	3E-09	--	1E-09	--	4E-09	NA	--	--	--	--
			Chemical Total	7E-08	--	3E-08	--	9E-08		--	--	--	--
		Exposure Point Total						9E-08					--
	Exposure Medium Total							9E-08					--
	Air	Site 2	Benzo(a)anthracene	--	6E-11	--	--	6E-11	NA	--	--	--	--
			Benzo(a)pyrene	--	3E-10	--	--	3E-10	NA	--	--	--	--
			Benzo(b)fluoranthene	--	5E-11	--	--	5E-11	NA	--	--	--	--
			Dibenzo(a,h)anthracene	--	7E-11	--	--	7E-11	NA	--	--	--	--
			Indeno(1,2,3-cd)pyrene	--	2E-11	--	--	2E-11	NA	--	--	--	--
			Chemical Total	--	5E-10	--	--	5E-10		--	--	--	--
		Exposure Point Total						5E-10					--
	Exposure Medium Total							5E-10					--
Medium Total								9E-08					--
Groundwater	Groundwater	Site 2	1,4-Dichlorobenzene	--	--	8E-11	--	8E-11	Liver	--	--	0.00002	0.00002
			Chloroform	--	--	3E-11	--	3E-11	Liver	--	--	0.0000007	0.0000007
			cis-1,2-Dichloroethene	--	--	--	--	--	Kidney	--	--	0.000009	0.000009
			Ethylbenzene	--	--	6E-10	--	6E-10	Liver	--	--	0.00004	0.00004
			m+p-Xylenes	--	--	--	--	--	Body Weight	--	--	0.00002	0.00002
			o-Xylene	--	--	--	--	--	Body Weight	--	--	0.00003	0.00003
			Trichloroethene	--	--	3E-10	--	3E-10	Liver, Kidney	--	--	0.0009	0.0009
			Vinyl Chloride	--	--	2E-09	--	2E-09	Liver	--	--	--	--
			Chemical Total	--	--	3E-09	--	3E-09		--	--	0.0010	0.0010
		Exposure Point Total						3E-09					0.0010
	Exposure Medium Total							3E-09					0.0010
	Air	Site 2	1,4-Dichlorobenzene	--	8E-11	--	--	8E-11	Liver	--	0.0000004	--	0.0000004
			Chloroform	--	8E-11	--	--	8E-11	Liver	--	0.000001	--	0.000001
			cis-1,2-Dichloroethene	--	--	--	--	--	NA	--	--	--	--
			Ethylbenzene	--	8E-11	--	--	8E-11	Ear	--	0.0000003	--	0.0000003
			m+p-Xylenes	--	--	--	--	--	CNS	--	0.000010	--	0.000010
			o-Xylene	--	--	--	--	--	CNS	--	0.00002	--	0.00002
			Trichloroethene	--	5E-11	--	--	5E-11	Liver, Kidney	--	0.000002	--	0.000002
			Vinyl Chloride	--	7E-11	--	--	7E-11	Liver	--	0.00002	--	0.00002
			Chemical Total	--	4E-10	--	--	4E-10		--	0.00005	--	0.00005
		Exposure Point Total						4E-10					0.00005
	Exposure Medium Total							4E-10					0.00005
Medium Total								3E-09					0.001
Receptor Total							Receptor Risk Total	1E-07				Receptor HI Total	0.001

TABLE 9.2.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURES
NWIRP CALVERTON, CALVERTON, NEW YORK

Scenario Timeframe: Future
Receptor Population: Industrial Workers
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface/Subsurface Soil	Surface/Subsurface Soil	Site 2	Benzo(a)anthracene	6E-08	--	5E-08	--	1E-07	NA	--	--	--	--
			Benzo(a)pyrene	3E-07	--	3E-07	--	6E-07	NA	--	--	--	--
			Benzo(b)fluoranthene	5E-08	--	4E-08	--	9E-08	NA	--	--	--	--
			Dibenzo(a,h)anthracene	7E-08	--	6E-08	--	1E-07	NA	--	--	--	--
			Indeno(1,2,3-cd)pyrene	2E-08	--	2E-08	--	4E-08	NA	--	--	--	--
			Chemical Total	5E-07	--	4E-07	--	1E-06		--	--	--	--
		Exposure Point Total						1E-06					--
	Exposure Medium Total							1E-06					--
	Air	Site 2	Benzo(a)anthracene	--	2E-12	--	--	2E-12	NA	--	--	--	--
			Benzo(a)pyrene	--	9E-12	--	--	9E-12	NA	--	--	--	--
			Benzo(b)fluoranthene	--	1E-12	--	--	1E-12	NA	--	--	--	--
			Dibenzo(a,h)anthracene	--	2E-12	--	--	2E-12	NA	--	--	--	--
			Indeno(1,2,3-cd)pyrene	--	6E-13	--	--	6E-13	NA	--	--	--	--
			Chemical Total	--	2E-11	--	--	2E-11		--	--	--	--
		Exposure Point Total						2E-11					--
	Exposure Medium Total							2E-11					--
Medium Total								1E-06					--
Receptor Total							Receptor Risk Total	1E-06				Receptor HI Total	--

TABLE 9.3.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURES
NWIRP CALVERTON, CALVERTON, NEW YORK

Scenario Timeframe: Future
Receptor Population: Recreational Users
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface/Subsurface Soil	Surface/Subsurface Soil	Site 2	Benzo(a)anthracene	7E-08	--	5E-08	--	1E-07	NA	--	--	--	--
			Benzo(a)pyrene	4E-07	--	3E-07	--	7E-07	NA	--	--	--	--
			Benzo(b)fluoranthene	6E-08	--	4E-08	--	1E-07	NA	--	--	--	--
			Dibenzo(a,h)anthracene	8E-08	--	6E-08	--	1E-07	NA	--	--	--	--
			Indeno(1,2,3-cd)pyrene	3E-08	--	2E-08	--	5E-08	NA	--	--	--	--
			Chemical Total	6E-07	--	5E-07	--	1E-06		--	--	--	--
		Exposure Point Total						1E-06					--
	Exposure Medium Total							1E-06					--
	Air	Site 2	Benzo(a)anthracene	--	2E-13	--	--	2E-13	NA	--	--	--	--
			Benzo(a)pyrene	--	1E-12	--	--	1E-12	NA	--	--	--	--
			Benzo(b)fluoranthene	--	2E-13	--	--	2E-13	NA	--	--	--	--
			Dibenzo(a,h)anthracene	--	3E-13	--	--	3E-13	NA	--	--	--	--
			Indeno(1,2,3-cd)pyrene	--	8E-14	--	--	8E-14	NA	--	--	--	--
			Chemical Total	--	2E-12	--	--	2E-12		--	--	--	--
		Exposure Point Total						2E-12					--
	Exposure Medium Total							2E-12					--
Medium Total								1E-06					--
Receptor Total							Receptor Risk Total	1E-06				Receptor HI Total	--

Notes:
1 - Mutagenic chemicals were evaluated in accordance with USEPA's Supplemental Guidance for Assessing Susceptibility from Early-Life Exposure to Carcinogens (2005).

TABLE 9.4.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURES
NWIRP CALVERTON, CALVERTON, NEW YORK

Scenario Timeframe: Future
Receptor Population: Recreational Users
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface/Subsurface Soil	Surface/Subsurface Soil	Site 2	Benzo(a)anthracene	1E-08	--	1E-08	--	2E-08	NA	--	--	--	--
			Benzo(a)pyrene	6E-08	--	6E-08	--	1E-07	NA	--	--	--	--
			Benzo(b)fluoranthene	9E-09	--	9E-09	--	2E-08	NA	--	--	--	--
			Dibenzo(a,h)anthracene	1E-08	--	1E-08	--	2E-08	NA	--	--	--	--
			Indeno(1,2,3-cd)pyrene	4E-09	--	4E-09	--	8E-09	NA	--	--	--	--
			Chemical Total	9E-08	--	1E-07	--	2E-07		--	--	--	--
		Exposure Point Total						2E-07					--
	Exposure Medium Total							2E-07					--
	Air	Site 2	Benzo(a)anthracene	--	3E-13	--	--	3E-13	NA	--	--	--	--
			Benzo(a)pyrene	--	2E-12	--	--	2E-12	NA	--	--	--	--
			Benzo(b)fluoranthene	--	2E-13	--	--	2E-13	NA	--	--	--	--
			Dibenzo(a,h)anthracene	--	4E-13	--	--	4E-13	NA	--	--	--	--
			Indeno(1,2,3-cd)pyrene	--	1E-13	--	--	1E-13	NA	--	--	--	--
			Chemical Total	--	3E-12	--	--	3E-12		--	--	--	--
		Exposure Point Total						3E-12					--
	Exposure Medium Total							3E-12					--
Medium Total								2E-07					--
Receptor Total							Receptor Risk Total	2E-07				Receptor HI Total	--

Notes:
1 - Mutagenic chemicals were evaluated in accordance with USEPA's Supplemental Guidance for Assessing Susceptibility from Early-Life Exposure to Carcinogens (2005).

TABLE 9.5.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURES
NWIRP CALVERTON, CALVERTON, NEW YORK

Scenario Timeframe: Future
Receptor Population: Recreational Users
Receptor Age: Lifelong (Child and Adult)

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface/Subsurface Soil	Surface/Subsurface Soil	Site 2	Benzo(a)anthracene	8E-08	--	6E-08	--	1E-07					
			Benzo(a)pyrene	5E-07	--	3E-07	--	8E-07					
			Benzo(b)fluoranthene	7E-08	--	5E-08	--	1E-07					
			Dibenzo(a,h)anthracene	9E-08	--	7E-08	--	2E-07					
			Indeno(1,2,3-cd)pyrene	3E-08	--	2E-08	--	5E-08					
			Chemical Total	7E-07	--	6E-07	--	1E-06					
		Exposure Point Total						1E-06					
	Exposure Medium Total							1E-06					
	Air	Site 2	Benzo(a)anthracene	--	5E-13	--	--	5E-13					
			Benzo(a)pyrene	--	3E-12	--	--	3E-12					
			Benzo(b)fluoranthene	--	4E-13	--	--	4E-13					
			Dibenzo(a,h)anthracene	--	7E-13	--	--	7E-13					
			Indeno(1,2,3-cd)pyrene	--	2E-13	--	--	2E-13					
			Chemical Total	--	5E-12	--	--	5E-12					
		Exposure Point Total						5E-12					
	Exposure Medium Total							5E-12					
Medium Total								1E-06					
Receptor Total							Receptor Risk Total	1E-06					

Notes:
1 - Mutagenic chemicals were evaluated in accordance with USEPA's Supplemental Guidance for Assessing Susceptibility from Early-Life Exposure to Carcinogens (2005).

TABLE 9.6.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURES
NWIRP CALVERTON, CALVERTON, NEW YORK

Scenario Timeframe: Hypothetical
Receptor Population: Residents
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface/Subsurface Soil	Surface/Subsurface Soil	Site 2	Benzo(a)anthracene	1E-06	--	4E-07	--	1E-06	NA	--	--	--	--
			Benzo(a)pyrene	5E-06	--	2E-06	--	7E-06	NA	--	--	--	--
			Benzo(b)fluoranthene	8E-07	--	3E-07	--	1E-06	NA	--	--	--	--
			Dibenzo(a,h)anthracene	1E-06	--	4E-07	--	2E-06	NA	--	--	--	--
			Indeno(1,2,3-cd)pyrene	4E-07	--	1E-07	--	5E-07	NA	--	--	--	--
			Chemical Total	9E-06	--	3E-06	--	1E-05		--	--	--	--
		Exposure Point Total						1E-05					--
	Exposure Medium Total							1E-05					--
	Air	Site 2	Benzo(a)anthracene	--	9E-12	--	--	9E-12	NA	--	--	--	--
			Benzo(a)pyrene	--	5E-11	--	--	5E-11	NA	--	--	--	--
			Benzo(b)fluoranthene	--	7E-12	--	--	7E-12	NA	--	--	--	--
			Dibenzo(a,h)anthracene	--	1E-11	--	--	1E-11	NA	--	--	--	--
			Indeno(1,2,3-cd)pyrene	--	3E-12	--	--	3E-12	NA	--	--	--	--
			Chemical Total	--	8E-11	--	--	8E-11		--	--	--	--
		Exposure Point Total						8E-11					--
	Exposure Medium Total							8E-11					--
Medium Total								1E-05					--
Groundwater	Groundwater	Site 2	1,4-Dichlorobenzene	4E-08	--	2E-08	--	6E-08	Liver	0.001	--	0.0008	0.002
			Chloroform	9E-08	--	8E-09	--	1E-07	Liver	0.003	--	0.0003	0.004
			cis-1,2-Dichloroethene	--	--	--	--	--	Kidney	0.03	--	0.004	0.03
			Ethylbenzene	3E-07	--	2E-07	--	5E-07	Liver, Kidney	0.003	--	0.002	0.005
			m+p-Xylenes	--	--	--	--	--	Body Weight	0.002	--	0.002	0.004
			o-Xylene	--	--	--	--	--	Body Weight	0.005	--	0.003	0.008
			Trichloroethene (Mutagenic)	5E-07	--	8E-08	--	6E-07	NA	--	--	--	--
			Trichloroethene (Nonmutagenic	4E-07	--	6E-08	--	4E-07	Immune System, Developmental	0.2	--	0.04	0.3
			Vinyl Chloride	9E-05	--	5E-06	--	1E-04	Liver	0.04	--	0.002	0.04
			Chemical Total	9E-05	--	5E-06	--	1E-04		0.3	--	0.05	0.4
		Exposure Point Total						1E-04					0.4
	Exposure Medium Total							1E-04					0.4
	Air	Site 2	1,4-Dichlorobenzene	--	6E-07	--	--	6E-07	Liver	--	0.0008	--	0.0008
			Chloroform	--	5E-07	--	--	5E-07	Liver	--	0.003	--	0.003
			cis-1,2-Dichloroethene	--	--	--	--	--	NA	--	--	--	--
			Ethylbenzene	--	5E-07	--	--	5E-07	Developmental	--	0.002	--	0.002
			m+p-Xylenes	--	--	--	--	--	CNS	--	0.009	--	0.009
			o-Xylene	--	--	--	--	--	CNS	--	0.02	--	0.02
			Trichloroethene (Mutagenic)	--	4E-07	--	--	4E-07	NA	--	--	--	--
			Trichloroethene (Nonmutagenic	--	2E-07	--	--	2E-07	Liver, Kidney	--	0.5	--	0.5
			Vinyl Chloride	--	4E-06	--	--	4E-06	Liver	--	0.009	--	0.009
			Chemical Total	--	7E-06	--	--	7E-06		--	0.5	--	0.5
		Exposure Point Total						7E-06					0.5
	Exposure Medium Total							7E-06					0.5
Medium Total								1E-04					0.9
Receptor Total							Receptor Risk Total	1E-04				Receptor HI Total	0.9

Notes:
1 - Mutagenic chemicals were evaluated in accordance with USEPA's Supplemental Guidance for Assessing Susceptibility from Early-Life Exposure to Carcinogens (2005).

TABLE 9.7.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURES
NWIRP CALVERTON, CALVERTON, NEW YORK

Scenario Timeframe: Hypothetical
Receptor Population: Residents
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface/Subsurface Soil	Surface/Subsurface Soil	Site 2	Benzo(a)anthracene	1E-07	--	7E-08	--	2E-07	NA	--	--	--	--
			Benzo(a)pyrene	8E-07	--	4E-07	--	1E-06	NA	--	--	--	--
			Benzo(b)fluoranthene	1E-07	--	6E-08	--	2E-07	NA	--	--	--	--
			Dibenzo(a,h)anthracene	2E-07	--	8E-08	--	2E-07	NA	--	--	--	--
			Indeno(1,2,3-cd)pyrene	5E-08	--	3E-08	--	8E-08	NA	--	--	--	--
			Chemical Total	1E-06	--	7E-07	--	2E-06		--	--	--	--
		Exposure Point Total						2E-06					--
	Exposure Medium Total							2E-06					--
	Air	Site 2	Benzo(a)anthracene	--	1E-11	--	--	1E-11	NA	--	--	--	--
			Benzo(a)pyrene	--	7E-11	--	--	7E-11	NA	--	--	--	--
			Benzo(b)fluoranthene	--	1E-11	--	--	1E-11	NA	--	--	--	--
			Dibenzo(a,h)anthracene	--	2E-11	--	--	2E-11	NA	--	--	--	--
			Indeno(1,2,3-cd)pyrene	--	5E-12	--	--	5E-12	NA	--	--	--	--
			Chemical Total	--	1E-10	--	--	1E-10		--	--	--	--
		Exposure Point Total						1E-10					--
	Exposure Medium Total							1E-10					--
Medium Total								2E-06					--
Groundwater	Groundwater	Site 2	1,4-Dichlorobenzene	7E-08	--	4E-08	--	1E-07	Liver	0.0005	--	0.0003	0.0008
			Chloroform	2E-07	--	1E-08	--	2E-07	Liver	0.001	--	0.0001	0.002
			cis-1,2-Dichloroethene	--	--	--	--	--	Kidney	0.01	--	0.002	0.01
			Ethylbenzene	5E-07	--	3E-07	--	8E-07	Liver, Kidney	0.001	--	0.0008	0.002
			m+p-Xylenes	--	--	--	--	--	Body Weight	0.001	--	0.0007	0.002
			o-Xylene	--	--	--	--	--	Body Weight	0.002	--	0.001	0.003
			Trichloroethene (Mutagenic)	3E-07	--	5E-08	--	4E-07	NA	--	--	--	--
			Trichloroethene (Nonmutagenic	7E-07	--	1E-07	--	8E-07	Immune System, Developmental	0.1	--	0.02	0.1
			Vinyl Chloride	1E-05	--	6E-07	--	1E-05	Liver	0.02	--	0.0009	0.02
			Chemical Total	1E-05	--	1E-06	--	2E-05		0.1	--	0.02	0.2
		Exposure Point Total						2E-05					0.2
	Exposure Medium Total							2E-05					0.2
	Air	Site 2	1,4-Dichlorobenzene	--	2E-06	--	--	2E-06	Liver	--	0.0008	--	0.0008
			Chloroform	--	2E-06	--	--	2E-06	Liver	--	0.003	--	0.003
			cis-1,2-Dichloroethene	--	--	--	--	--	NA	--	--	--	--
			Ethylbenzene	--	2E-06	--	--	2E-06	Developmental	--	0.002	--	0.002
			m+p-Xylenes	--	--	--	--	--	CNS	--	0.009	--	0.009
			o-Xylene	--	--	--	--	--	CNS	--	0.02	--	0.02
			Trichloroethene (Mutagenic)	--	6E-07	--	--	6E-07	NA	--	--	--	--
			Trichloroethene (Nonmutagenic	--	1E-06	--	--	1E-06	Liver, Kidney	--	0.5	--	0.5
			Vinyl Chloride	--	1E-06	--	--	1E-06	Liver	--	0.009	--	0.009
			Chemical Total	--	9E-06	--	--	9E-06		--	0.5	--	0.5
		Exposure Point Total						9E-06					0.5
	Exposure Medium Total							9E-06					0.5
Medium Total								2E-05					0.7
Receptor Total							Receptor Risk Total	3E-05				Receptor HI Total	0.7

Notes:
1 - Mutagenic chemicals were evaluated in accordance with USEPA's Supplemental Guidance for Assessing Susceptibility from Early-Life Exposure to Carcinogens (2005).

TABLE 9.8.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURES
NWIRP CALVERTON, CALVERTON, NEW YORK

Scenario Timeframe: Hypothetical
Receptor Population: Residents
Receptor Age: Lifelong (Child and Adult)

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface/Subsurface Soil	Surface/Subsurface Soil	Site 2	Benzo(a)anthracene	1E-06	--	4E-07	--	2E-06					
			Benzo(a)pyrene	6E-06	--	2E-06	--	8E-06					
			Benzo(b)fluoranthene	9E-07	--	3E-07	--	1E-06					
			Dibenzo(a,h)anthracene	1E-06	--	5E-07	--	2E-06					
			Indeno(1,2,3-cd)pyrene	4E-07	--	2E-07	--	6E-07					
			Chemical Total	1E-05	--	4E-06	--	1E-05					
		Exposure Point Total						1E-05					
	Exposure Medium Total							1E-05					
	Air	Site 2	Benzo(a)anthracene	--	2E-11	--	--	2E-11					
			Benzo(a)pyrene	--	1E-10	--	--	1E-10					
			Benzo(b)fluoranthene	--	2E-11	--	--	2E-11					
			Dibenzo(a,h)anthracene	--	3E-11	--	--	3E-11					
			Indeno(1,2,3-cd)pyrene	--	8E-12	--	--	8E-12					
			Chemical Total	--	2E-10	--	--	2E-10					
		Exposure Point Total						2E-10					
	Exposure Medium Total							2E-10					
Medium Total								1E-05					
Groundwater	Groundwater	Site 2	1,4-Dichlorobenzene	1E-07	--	7E-08	--	2E-07					
			Chloroform	3E-07	--	2E-08	--	3E-07					
			cis-1,2-Dichloroethene	--	--	--	--	--					
			Ethylbenzene	8E-07	--	5E-07	--	1E-06					
			m+p-Xylenes	--	--	--	--	--					
			o-Xylene	--	--	--	--	--					
			Trichloroethene (Mutagenic)	8E-07	--	1E-07	--	1E-06					
			Trichloroethene (Nonmutagenic)	1E-06	--	2E-07	--	1E-06					
			Vinyl Chloride	1E-04	--	6E-06	--	1E-04					
			Chemical Total	1E-04	--	7E-06	--	1E-04					
		Exposure Point Total						1E-04					
	Exposure Medium Total							1E-04					
	Air	Site 2	1,4-Dichlorobenzene	--	3E-06	--	--	3E-06					
			Chloroform	--	3E-06	--	--	3E-06					
			cis-1,2-Dichloroethene	--	--	--	--	--					
			Ethylbenzene	--	2E-06	--	--	2E-06					
			m+p-Xylenes	--	--	--	--	--					
			o-Xylene	--	--	--	--	--					
			Trichloroethene (Mutagenic)	--	1E-06	--	--	1E-06					
			Trichloroethene (Nonmutagenic)	--	1E-06	--	--	1E-06					
			Vinyl Chloride	--	6E-06	--	--	6E-06					
			Chemical Total	--	2E-05	--	--	2E-05					
		Exposure Point Total						2E-05					
	Exposure Medium Total							2E-05					
Medium Total								1E-04					
Receptor Total							Receptor Risk Total	1E-04					

Notes:
1 - Mutagenic chemicals were evaluated in accordance with USEPA's Supplemental Guidance for Assessing Susceptibility from Early-Life Exposure to Carcinogens (2005).

TABLE 9.1.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURES
NWIRP CALVERTON, CALVERTON, NEW YORK

Scenario Timeframe: Future
Receptor Population: Construction Workers
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface/Subsurface Soil	Surface/Subsurface Soil	Site 2	Benzo(a)anthracene	2E-09	--	5E-10	--	2E-09	NA	--	--	--	--
			Benzo(a)pyrene	1E-08	--	3E-09	--	1E-08	NA	--	--	--	--
			Benzo(b)fluoranthene	2E-09	--	4E-10	--	2E-09	NA	--	--	--	--
			Dibenzo(a,h)anthracene	2E-09	--	6E-10	--	3E-09	NA	--	--	--	--
			Indeno(1,2,3-cd)pyrene	7E-10	--	2E-10	--	9E-10	NA	--	--	--	--
			Chemical Total	2E-08	--	4E-09	--	2E-08		--	--	--	--
		Exposure Point Total						2E-08					--
	Exposure Medium Total							2E-08					--
	Air	Site 2	Benzo(a)anthracene	--	3E-11	--	--	3E-11	NA	--	--	--	--
			Benzo(a)pyrene	--	2E-10	--	--	2E-10	NA	--	--	--	--
			Benzo(b)fluoranthene	--	2E-11	--	--	2E-11	NA	--	--	--	--
			Dibenzo(a,h)anthracene	--	4E-11	--	--	4E-11	NA	--	--	--	--
			Indeno(1,2,3-cd)pyrene	--	1E-11	--	--	1E-11	NA	--	--	--	--
			Chemical Total	--	3E-10	--	--	3E-10		--	--	--	--
		Exposure Point Total						3E-10					--
	Exposure Medium Total							3E-10					--
Medium Total								2E-08					--
Groundwater	Groundwater	Site 2	1,4-Dichlorobenzene	--	--	5E-11	--	5E-11	Liver	--	--	0.00001	0.00001
			Chloroform	--	--	2E-11	--	2E-11	Liver	--	--	0.0000004	0.0000004
			cis-1,2-Dichloroethene	--	--	--	--	--	Kidney	--	--	0.000005	0.000005
			Ethylbenzene	--	--	4E-10	--	4E-10	Liver	--	--	0.00002	0.00002
			m+p-Xylenes	--	--	--	--	--	Body Weight	--	--	0.00001	0.00001
			o-Xylene	--	--	--	--	--	Body Weight	--	--	0.00002	0.00002
			Trichloroethene	--	--	2E-10	--	2E-10	Liver, Kidney	--	--	0.0005	0.0005
			Vinyl Chloride	--	--	1E-09	--	1E-09	Liver	--	--	--	--
			Chemical Total	--	--	2E-09	--	2E-09		--	--	0.0006	0.0006
		Exposure Point Total						2E-09					0.0006
	Exposure Medium Total							2E-09					0.0006
	Air	Site 2	1,4-Dichlorobenzene	--	2E-11	--	--	2E-11	Liver	--	0.0000001	--	0.0000001
			Chloroform	--	2E-11	--	--	2E-11	Liver	--	0.0000003	--	0.0000003
			cis-1,2-Dichloroethene	--	--	--	--	--	NA	--	--	--	--
			Ethylbenzene	--	2E-11	--	--	2E-11	Ear	--	7E-8	--	7E-8
			m+p-Xylenes	--	--	--	--	--	CNS	--	0.000002	--	0.000002
			o-Xylene	--	--	--	--	--	CNS	--	0.000005	--	0.000005
			Trichloroethene	--	1E-11	--	--	1E-11	Liver, Kidney	--	0.0000004	--	0.0000004
			Vinyl Chloride	--	2E-11	--	--	2E-11	Liver	--	0.000004	--	0.000004
			Chemical Total	--	9E-11	--	--	9E-11		--	0.00001	--	0.00001
		Exposure Point Total						9E-11					0.00001
	Exposure Medium Total							9E-11					0.00001
Medium Total								2E-09					0.0006
Receptor Total							Receptor Risk Total	2E-08				Receptor HI Total	0.0006

TABLE 9.2.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURES
NWIRP CALVERTON, CALVERTON, NEW YORK

Scenario Timeframe: Future
Receptor Population: Industrial Workers
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface/Subsurface Soil	Surface/Subsurface Soil	Site 2	Benzo(a)anthracene	9E-09	--	2E-09	--	1E-08	NA	--	--	--	--
			Benzo(a)pyrene	5E-08	--	9E-09	--	6E-08	NA	--	--	--	--
			Benzo(b)fluoranthene	7E-09	--	1E-09	--	9E-09	NA	--	--	--	--
			Dibenzo(a,h)anthracene	1E-08	--	2E-09	--	1E-08	NA	--	--	--	--
			Indeno(1,2,3-cd)pyrene	3E-09	--	6E-10	--	4E-09	NA	--	--	--	--
			Chemical Total	8E-08	--	1E-08	--	9E-08		--	--	--	--
		Exposure Point Total						9E-08					--
	Exposure Medium Total							9E-08					--
	Air	Site 2	Benzo(a)anthracene	--	5E-13	--	--	5E-13	NA	--	--	--	--
			Benzo(a)pyrene	--	3E-12	--	--	3E-12	NA	--	--	--	--
			Benzo(b)fluoranthene	--	4E-13	--	--	4E-13	NA	--	--	--	--
			Dibenzo(a,h)anthracene	--	7E-13	--	--	7E-13	NA	--	--	--	--
			Indeno(1,2,3-cd)pyrene	--	2E-13	--	--	2E-13	NA	--	--	--	--
			Chemical Total	--	5E-12	--	--	5E-12		--	--	--	--
		Exposure Point Total						5E-12					--
	Exposure Medium Total							5E-12					--
Medium Total								9E-08					--
Receptor Total							Receptor Risk Total	9E-08				Receptor HI Total	--

TABLE 9.3.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURES
NWIRP CALVERTON, CALVERTON, NEW YORK

Scenario Timeframe: Future
Receptor Population: Recreational Users
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface/Subsurface Soil	Surface/Subsurface Soil	Site 2	Benzo(a)anthracene	7E-09	--	2E-09	--	9E-09	NA	--	--	--	--
			Benzo(a)pyrene	4E-08	--	1E-08	--	5E-08	NA	--	--	--	--
			Benzo(b)fluoranthene	6E-09	--	2E-09	--	8E-09	NA	--	--	--	--
			Dibenzo(a,h)anthracene	8E-09	--	2E-09	--	1E-08	NA	--	--	--	--
			Indeno(1,2,3-cd)pyrene	3E-09	--	8E-10	--	3E-09	NA	--	--	--	--
			Chemical Total	6E-08	--	2E-08	--	8E-08		--	--	--	--
		Exposure Point Total						8E-08					--
	Exposure Medium Total							8E-08					--
	Air	Site 2	Benzo(a)anthracene	--	2E-11	--	--	2E-11	NA	--	--	--	--
			Benzo(a)pyrene	--	1E-10	--	--	1E-10	NA	--	--	--	--
			Benzo(b)fluoranthene	--	2E-11	--	--	2E-11	NA	--	--	--	--
			Dibenzo(a,h)anthracene	--	3E-11	--	--	3E-11	NA	--	--	--	--
			Indeno(1,2,3-cd)pyrene	--	8E-12	--	--	8E-12	NA	--	--	--	--
			Chemical Total	--	2E-10	--	--	2E-10		--	--	--	--
		Exposure Point Total						2E-10					--
	Exposure Medium Total							2E-10					--
Medium Total								8E-08					--
Receptor Total							Receptor Risk Total	8E-08				Receptor HI Total	--

Notes:
1 - Mutagenic chemicals were evaluated in accordance with USEPA's Supplemental Guidance for Assessing Susceptibility from Early-Life Exposure to Carcinogens (2005).

TABLE 9.4.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURES
NWIRP CALVERTON, CALVERTON, NEW YORK

Scenario Timeframe: Future
Receptor Population: Recreational Users
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface/Subsurface Soil	Surface/Subsurface Soil	Site 2	Benzo(a)anthracene	7E-10	--	2E-10	--	9E-10	NA	--	--	--	--
			Benzo(a)pyrene	4E-09	--	1E-09	--	5E-09	NA	--	--	--	--
			Benzo(b)fluoranthene	5E-10	--	2E-10	--	7E-10	NA	--	--	--	--
			Dibenzo(a,h)anthracene	8E-10	--	2E-10	--	1E-09	NA	--	--	--	--
			Indeno(1,2,3-cd)pyrene	2E-10	--	7E-11	--	3E-10	NA	--	--	--	--
			Chemical Total	6E-09	--	2E-09	--	8E-09		--	--	--	--
		Exposure Point Total						8E-09					--
	Exposure Medium Total							8E-09					--
	Air	Site 2	Benzo(a)anthracene	--	2E-14	--	--	2E-14	NA	--	--	--	--
			Benzo(a)pyrene	--	1E-13	--	--	1E-13	NA	--	--	--	--
			Benzo(b)fluoranthene	--	2E-14	--	--	2E-14	NA	--	--	--	--
			Dibenzo(a,h)anthracene	--	2E-14	--	--	2E-14	NA	--	--	--	--
			Indeno(1,2,3-cd)pyrene	--	7E-15	--	--	7E-15	NA	--	--	--	--
			Chemical Total	--	2E-13	--	--	2E-13		--	--	--	--
		Exposure Point Total						2E-13					--
	Exposure Medium Total							2E-13					--
Medium Total								8E-09					--
Receptor Total							Receptor Risk Total	8E-09				Receptor HI Total	--

Notes:
1 - Mutagenic chemicals were evaluated in accordance with USEPA's Supplemental Guidance for Assessing Susceptibility from Early-Life Exposure to Carcinogens (2005).

TABLE 9.5.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURES
NWIRP CALVERTON, CALVERTON, NEW YORK

Scenario Timeframe: Future
Receptor Population: Recreational Users
Receptor Age: Lifelong (Child and Adult)

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface/Subsurface Soil	Surface/Subsurface Soil	Site 2	Benzo(a)anthracene	8E-09	--	2E-09	--	1E-08					
			Benzo(a)pyrene	4E-08	--	1E-08	--	6E-08					
			Benzo(b)fluoranthene	6E-09	--	2E-09	--	8E-09					
			Dibenzo(a,h)anthracene	9E-09	--	3E-09	--	1E-08					
			Indeno(1,2,3-cd)pyrene	3E-09	--	9E-10	--	4E-09					
			Chemical Total	7E-08	--	2E-08	--	9E-08					
		Exposure Point Total						9E-08					
	Exposure Medium Total							9E-08					
	Air	Site 2	Benzo(a)anthracene	--	2E-11	--	--	2E-11					
			Benzo(a)pyrene	--	1E-10	--	--	1E-10					
			Benzo(b)fluoranthene	--	2E-11	--	--	2E-11					
			Dibenzo(a,h)anthracene	--	3E-11	--	--	3E-11					
			Indeno(1,2,3-cd)pyrene	--	8E-12	--	--	8E-12					
			Chemical Total	--	2E-10	--	--	2E-10					
		Exposure Point Total						2E-10					
	Exposure Medium Total							2E-10					
Medium Total								9E-08					
Receptor Total							Receptor Risk Total	9E-08					

Notes:
1 - Mutagenic chemicals were evaluated in accordance with USEPA's Supplemental Guidance for Assessing Susceptibility from Early-Life Exposure to Carcinogens (2005).

TABLE 9.6.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURES
NWIRP CALVERTON, CALVERTON, NEW YORK

Scenario Timeframe: Hypothetical
Receptor Population: Residents
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface/Subsurface Soil	Surface/Subsurface Soil	Site 2	Benzo(a)anthracene	1E-07	--	2E-08	--	2E-07	NA	--	--	--	--
			Benzo(a)pyrene	7E-07	--	1E-07	--	8E-07	NA	--	--	--	--
			Benzo(b)fluoranthene	1E-07	--	2E-08	--	1E-07	NA	--	--	--	--
			Dibenzo(a,h)anthracene	2E-07	--	2E-08	--	2E-07	NA	--	--	--	--
			Indeno(1,2,3-cd)pyrene	5E-08	--	7E-09	--	6E-08	NA	--	--	--	--
			Chemical Total	1E-06	--	2E-07	--	1E-06		--	--	--	--
		Exposure Point Total						1E-06					--
	Exposure Medium Total							1E-06					--
	Air	Site 2	Benzo(a)anthracene	--	2E-12	--	--	2E-12	NA	--	--	--	--
			Benzo(a)pyrene	--	1E-11	--	--	1E-11	NA	--	--	--	--
			Benzo(b)fluoranthene	--	2E-12	--	--	2E-12	NA	--	--	--	--
			Dibenzo(a,h)anthracene	--	3E-12	--	--	3E-12	NA	--	--	--	--
			Indeno(1,2,3-cd)pyrene	--	9E-13	--	--	9E-13	NA	--	--	--	--
			Chemical Total	--	2E-11	--	--	2E-11		--	--	--	--
		Exposure Point Total						2E-11					--
	Exposure Medium Total							2E-11					--
Medium Total								1E-06					--
Groundwater	Groundwater	Site 2	1,4-Dichlorobenzene	6E-09	--	3E-09	--	9E-09	Liver	0.0005	--	0.0003	0.0008
			Chloroform	1E-08	--	1E-09	--	1E-08	Liver	0.002	--	0.0001	0.002
			cis-1,2-Dichloroethene	--	--	--	--	--	Kidney	0.01	--	0.001	0.01
			Ethylbenzene	4E-08	--	2E-08	--	6E-08	Liver, Kidney	0.001	--	0.0007	0.002
			m+p-Xylenes	--	--	--	--	--	Body Weight	0.001	--	0.0006	0.002
			o-Xylene	--	--	--	--	--	Body Weight	0.002	--	0.001	0.003
			Trichloroethene (Mutagenic)	9E-08	--	1E-08	--	1E-07	NA	--	--	--	--
			Trichloroethene (Nonmutagenic	6E-08	--	8E-09	--	6E-08	Immune System, Developmental	0.1	--	0.02	0.1
			Vinyl Chloride	6E-05	--	3E-06	--	6E-05	Liver	0.02	--	0.0007	0.02
			Chemical Total	6E-05	--	3E-06	--	6E-05		0.1	--	0.02	0.2
		Exposure Point Total						6E-05					0.2
	Exposure Medium Total							6E-05					0.2
	Air	Site 2	1,4-Dichlorobenzene	--	1E-07	--	--	1E-07	Liver	--	0.0005	--	0.0005
			Chloroform	--	1E-07	--	--	1E-07	Liver	--	0.002	--	0.002
			cis-1,2-Dichloroethene	--	--	--	--	--	NA	--	--	--	--
			Ethylbenzene	--	1E-07	--	--	1E-07	Developmental	--	0.002	--	0.002
			m+p-Xylenes	--	--	--	--	--	CNS	--	0.006	--	0.006
			o-Xylene	--	--	--	--	--	CNS	--	0.01	--	0.01
			Trichloroethene (Mutagenic)	--	1E-07	--	--	1E-07	NA	--	--	--	--
			Trichloroethene (Nonmutagenic	--	5E-08	--	--	5E-08	Liver, Kidney	--	0.3	--	0.3
			Vinyl Chloride	--	4E-06	--	--	4E-06	Liver	--	0.006	--	0.006
			Chemical Total	--	5E-06	--	--	5E-06		--	0.3	--	0.3
		Exposure Point Total						5E-06					0.3
	Exposure Medium Total							5E-06					0.3
Medium Total								7E-05					0.5
Receptor Total							Receptor Risk Total	7E-05				Receptor HI Total	0.5

Notes:
1 - Mutagenic chemicals were evaluated in accordance with USEPA's Supplemental Guidance for Assessing Susceptibility from Early-Life Exposure to Carcinogens (2005).

TABLE 9.7.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURES
NWIRP CALVERTON, CALVERTON, NEW YORK

Scenario Timeframe: Hypothetical
Receptor Population: Residents
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface/Subsurface Soil	Surface/Subsurface Soil	Site 2	Benzo(a)anthracene	1E-08	--	2E-09	--	1E-08	NA	--	--	--	--
			Benzo(a)pyrene	7E-08	--	1E-08	--	8E-08	NA	--	--	--	--
			Benzo(b)fluoranthene	1E-08	--	1E-09	--	1E-08	NA	--	--	--	--
			Dibenzo(a,h)anthracene	1E-08	--	2E-09	--	2E-08	NA	--	--	--	--
			Indeno(1,2,3-cd)pyrene	4E-09	--	7E-10	--	5E-09	NA	--	--	--	--
			Chemical Total	1E-07	--	2E-08	--	1E-07		--	--	--	--
		Exposure Point Total						1E-07					--
	Exposure Medium Total							1E-07					--
	Air	Site 2	Benzo(a)anthracene	--	2E-12	--	--	2E-12	NA	--	--	--	--
			Benzo(a)pyrene	--	1E-11	--	--	1E-11	NA	--	--	--	--
			Benzo(b)fluoranthene	--	2E-12	--	--	2E-12	NA	--	--	--	--
			Dibenzo(a,h)anthracene	--	3E-12	--	--	3E-12	NA	--	--	--	--
			Indeno(1,2,3-cd)pyrene	--	8E-13	--	--	8E-13	NA	--	--	--	--
			Chemical Total	--	2E-11	--	--	2E-11		--	--	--	--
		Exposure Point Total						2E-11					--
	Exposure Medium Total							2E-11					--
Medium Total								1E-07					--
Groundwater	Groundwater	Site 2	1,4-Dichlorobenzene	9E-09	--	6E-09	--	1E-08	Liver	0.0002	--	0.0001	0.0004
			Chloroform	2E-08	--	2E-09	--	2E-08	Liver	0.0007	--	0.00006	0.0008
			cis-1,2-Dichloroethene	--	--	--	--	--	Kidney	0.006	--	0.0007	0.006
			Ethylbenzene	7E-08	--	4E-08	--	1E-07	Liver, Kidney	0.0006	--	0.0003	0.0010
			m+p-Xylenes	--	--	--	--	--	Body Weight	0.0005	--	0.0003	0.0008
			o-Xylene	--	--	--	--	--	Body Weight	0.001	--	0.0005	0.002
			Trichloroethene (Mutagenic)	4E-08	--	6E-09	--	4E-08	NA	--	--	--	--
			Trichloroethene (Nonmutagenic)	9E-08	--	1E-08	--	1E-07	Immune System, Developmental	0.05	--	0.008	0.06
			Vinyl Chloride	2E-06	--	8E-08	--	2E-06	Liver	0.008	--	0.0004	0.008
			Chemical Total	2E-06	--	1E-07	--	2E-06		0.07	--	0.01	0.08
		Exposure Point Total						2E-06					0.08
	Exposure Medium Total							2E-06					0.08
	Air	Site 2	1,4-Dichlorobenzene	--	5E-07	--	--	5E-07	Liver	--	0.0005	--	0.0005
			Chloroform	--	4E-07	--	--	4E-07	Liver	--	0.002	--	0.002
			cis-1,2-Dichloroethene	--	--	--	--	--	NA	--	--	--	--
			Ethylbenzene	--	4E-07	--	--	4E-07	Developmental	--	0.002	--	0.002
			m+p-Xylenes	--	--	--	--	--	CNS	--	0.006	--	0.006
			o-Xylene	--	--	--	--	--	CNS	--	0.01	--	0.01
			Trichloroethene (Mutagenic)	--	1E-07	--	--	1E-07	NA	--	--	--	--
			Trichloroethene (Nonmutagenic)	--	2E-07	--	--	2E-07	Liver, Kidney	--	0.3	--	0.3
			Vinyl Chloride	--	3E-07	--	--	3E-07	Liver	--	0.006	--	0.006
			Chemical Total	--	2E-06	--	--	2E-06		--	0.3	--	0.3
		Exposure Point Total						2E-06					0.3
	Exposure Medium Total							2E-06					0.3
Medium Total								4E-06					0.4
Receptor Total							Receptor Risk Total	4E-06				Receptor HI Total	0.4

Notes:
1 - Mutagenic chemicals were evaluated in accordance with USEPA's Supplemental Guidance for Assessing Susceptibility from Early-Life Exposure to Carcinogens (2005).

TABLE 9.8.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURES
NWIRP CALVERTON, CALVERTON, NEW YORK

Scenario Timeframe: Hypothetical
Receptor Population: Residents
Receptor Age: Lifelong (Child and Adult)

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface/Subsurface Soil	Surface/Subsurface Soil	Site 2	Benzo(a)anthracene	1E-07	--	2E-08	--	2E-07					
			Benzo(a)pyrene	8E-07	--	1E-07	--	9E-07					
			Benzo(b)fluoranthene	1E-07	--	2E-08	--	1E-07					
			Dibenzo(a,h)anthracene	2E-07	--	2E-08	--	2E-07					
			Indeno(1,2,3-cd)pyrene	5E-08	--	8E-09	--	6E-08					
			Chemical Total	1E-06	--	2E-07	--	1E-06					
		Exposure Point Total						1E-06					
	Exposure Medium Total							1E-06					
	Air	Site 2	Benzo(a)anthracene	--	5E-12	--	--	5E-12					
			Benzo(a)pyrene	--	2E-11	--	--	2E-11					
			Benzo(b)fluoranthene	--	4E-12	--	--	4E-12					
			Dibenzo(a,h)anthracene	--	6E-12	--	--	6E-12					
			Indeno(1,2,3-cd)pyrene	--	2E-12	--	--	2E-12					
			Chemical Total	--	4E-11	--	--	4E-11					
		Exposure Point Total						4E-11					
	Exposure Medium Total							4E-11					
Medium Total								1E-06					
Groundwater	Groundwater	Site 2	1,4-Dichlorobenzene	1E-08	--	9E-09	--	2E-08					
			Chloroform	4E-08	--	3E-09	--	4E-08					
			cis-1,2-Dichloroethene	- -	--	- -	--	- -					
			Ethylbenzene	1E-07	--	6E-08	--	2E-07					
			m+p-Xylenes	- -	--	- -	--	- -					
			o-Xylene	- -	--	- -	--	- -					
			Trichloroethene (Mutagenic)	1E-07	--	2E-08	--	1E-07					
			Trichloroethene (Nonmutagenic	1E-07	--	2E-08	--	2E-07					
			Vinyl Chloride	6E-05	--	3E-06	--	6E-05					
			Chemical Total	6E-05	--	3E-06	--	6E-05					
		Exposure Point Total						6E-05					
	Exposure Medium Total							6E-05					
	Air	Site 2	1,4-Dichlorobenzene	--	6E-07	--	--	6E-07					
			Chloroform	--	5E-07	--	--	5E-07					
			cis-1,2-Dichloroethene	--	- -	--	--	- -					
			Ethylbenzene	--	5E-07	--	--	5E-07					
			m+p-Xylenes	--	- -	--	--	- -					
			o-Xylene	--	- -	--	--	- -					
			Trichloroethene (Mutagenic)	--	2E-07	--	--	2E-07					
			Trichloroethene (Nonmutagenic	--	2E-07	--	--	2E-07					
			Vinyl Chloride	--	4E-06	--	--	4E-06					
			Chemical Total	--	6E-06	--	--	6E-06					
		Exposure Point Total						6E-06					
	Exposure Medium Total							6E-06					
Medium Total								7E-05					
Receptor Total							Receptor Risk Total	7E-05					

Notes:
1 - Mutagenic chemicals were evaluated in accordance with USEPA's Supplemental Guidance for Assessing Susceptibility from Early-Life Exposure to Carcinogens (2005).

APPENDIX H.3

PROUCL OUTPUTS

Surface/Subsurface Soil

PROUCL OUTPUT - SURFACE/SUBSURFACE SOIL

	General UCL Statistics for Data Sets with Non-Detects
User Selected Options	
From File	C:\Work Folders\Projects\Calverton\Site 2\EPCs\ProUCL Data - Combined Soils.xls.wst
Full Precision	OFF
Confidence Coefficient	95%
Number of Bootstrap Operations	2000

BENZO(A)ANTHRACENE

General Statistics

Number of Valid Data	13	Number of Detected Data	3
Number of Distinct Detected Data	3	Number of Non-Detect Data	10
		Percent Non-Detects	76.92%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	130	Minimum Detected	4.868
Maximum Detected	460	Maximum Detected	6.131
Mean of Detected	300	Mean of Detected	5.578
SD of Detected	165.2	SD of Detected	0.647
Minimum Non-Detect	1.7	Minimum Non-Detect	0.531
Maximum Non-Detect	1.9	Maximum Non-Detect	0.642

Note: Data have multiple DLs - Use of KM Method is recommended	Number treated as Non-Detect	10
For all methods (except KM, DL/2, and ROS Methods),	Number treated as Detected	3
Observations < Largest ND are treated as NDs	Single DL Non-Detect Percentage	76.92%

Warning: There are only 3 Distinct Detected Values in this data set
The number of detected data may not be adequate enough to perform GOF tests, bootstrap, and ROS methods.
Those methods will return a 'N/A' value on your output display!

It is necessary to have 4 or more Distinct Values for bootstrap methods.
However, results obtained using 4 to 9 distinct values may not be reliable.
It is recommended to have 10 to 15 or more observations for accurate and meaningful results and estimates.

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.997	Shapiro Wilk Test Statistic	0.955
5% Shapiro Wilk Critical Value	0.767	5% Shapiro Wilk Critical Value	0.767
Data appear Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	69.91	Mean	1.191
SD	147.5	SD	2.515
95% DL/2 (t) UCL	142.8	95% H-Stat (DL/2) UCL	5642
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE method failed to converge properly		Mean in Log Scale	3.267
		SD in Log Scale	1.527
		Mean in Original Scale	82.69
		SD in Original Scale	141.5
		95% t UCL	152.6
		95% Percentile Bootstrap UCL	151.8
		95% BCA Bootstrap UCL	173.2
		95% H-UCL	456.7

BENZO(A)ANTHRACENE (Continued)

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only	
k star (bias corrected)	N/A	Data appear Normal at 5% Significance Level	
Theta Star	N/A		
nu star	N/A		
A-D Test Statistic	N/A	Nonparametric Statistics	
5% A-D Critical Value	N/A	Kaplan-Meier (KM) Method	
K-S Test Statistic	N/A	Mean	169.2
5% K-S Critical Value	N/A	SD	96.59
Data not Gamma Distributed at 5% Significance Level		SE of Mean	32.81
		95% KM (t) UCL	227.7
Assuming Gamma Distribution		95% KM (z) UCL	223.2
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	288.2
Minimum	N/A	95% KM (bootstrap t) UCL	188
Maximum	N/A	95% KM (BCA) UCL	460
Mean	N/A	95% KM (Percentile Bootstrap) UCL	460
Median	N/A	95% KM (Chebyshev) UCL	312.3
SD	N/A	97.5% KM (Chebyshev) UCL	374.1
k star	N/A	99% KM (Chebyshev) UCL	495.7
Theta star	N/A		
Nu star	N/A	Potential UCLs to Use	
AppChi2	N/A	95% KM (t) UCL	227.7
95% Gamma Approximate UCL	N/A	95% KM (Percentile Bootstrap) UCL	460
95% Adjusted Gamma UCL	N/A		

Note: DL/2 is not a recommended method.

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
For additional insight, the user may want to consult a statistician.

BENZO(A)PYRENE

General Statistics			
Number of Valid Data	13	Number of Detected Data	4
Number of Distinct Detected Data	4	Number of Non-Detect Data	9
		Percent Non-Detects	69.23%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	13	Minimum Detected	2.565
Maximum Detected	420	Maximum Detected	6.04
Mean of Detected	170.8	Mean of Detected	4.562
SD of Detected	174.8	SD of Detected	1.453
Minimum Non-Detect	1.7	Minimum Non-Detect	0.531
Maximum Non-Detect	1.9	Maximum Non-Detect	0.642

Note: Data have multiple DLs - Use of KM Method is recommended	Number treated as Non-Detect	9
For all methods (except KM, DL/2, and ROS Methods),	Number treated as Detected	4
Observations < Largest ND are treated as NDs	Single DL Non-Detect Percentage	69.23%

Warning: There are only 4 Distinct Detected Values in this data
Note: It should be noted that even though bootstrap may be performed on this data set
the resulting calculations may not be reliable enough to draw conclusions

It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.885	Shapiro Wilk Test Statistic	0.931
5% Shapiro Wilk Critical Value	0.748	5% Shapiro Wilk Critical Value	0.748
Data appear Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	53.15	Mean	1.315
SD	119.6	SD	2.367
95% DL/2 (t) UCL	112.3	95% H-Stat (DL/2) UCL	2812
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE yields a negative mean		Mean in Log Scale	0.819
		SD in Log Scale	2.927
		Mean in Original Scale	53.14
		SD in Original Scale	119.6
		95% t UCL	112.2
		95% Percentile Bootstrap UCL	108.3
		95% BCA Bootstrap UCL	147.3
		95% H-UCL	51091

BENZO(A)PYRENE (Continued)

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only	
k star (bias corrected)	0.416	Data appear Normal at 5% Significance Level	
Theta Star	410.2		
nu star	3.33		
A-D Test Statistic	0.262	Nonparametric Statistics	
5% A-D Critical Value	0.667	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.667	Mean	61.54
5% K-S Critical Value	0.402	SD	111.1
Data appear Gamma Distributed at 5% Significance Level		SE of Mean	35.59
		95% KM (t) UCL	125
Assuming Gamma Distribution		95% KM (z) UCL	120.1
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	133.4
Minimum	0.000001	95% KM (bootstrap t) UCL	146.7
Maximum	420	95% KM (BCA) UCL	N/A
Mean	52.54	95% KM (Percentile Bootstrap) UCL	183.1
Median	0.000001	95% KM (Chebyshev) UCL	216.7
SD	119.9	97.5% KM (Chebyshev) UCL	283.8
k star	0.105	99% KM (Chebyshev) UCL	415.7
Theta star	500.3		
Nu star	2.73	Potential UCLs to Use	
AppChi2	0.297	95% KM (t) UCL	125
95% Gamma Approximate UCL	482.6	95% KM (Percentile Bootstrap) UCL	183.1
95% Adjusted Gamma UCL	N/A		

Note: DL/2 is not a recommended method.

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
For additional insight, the user may want to consult a statistician.

BENZO(B)FLUORANTHENE

General Statistics			
Number of Valid Data	13	Number of Detected Data	5
Number of Distinct Detected Data	5	Number of Non-Detect Data	8
		Percent Non-Detects	61.54%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	1.4	Minimum Detected	0.336
Maximum Detected	580	Maximum Detected	6.363
Mean of Detected	225.9	Mean of Detected	4.122
SD of Detected	245	SD of Detected	2.5
Minimum Non-Detect	1.7	Minimum Non-Detect	0.531
Maximum Non-Detect	1.9	Maximum Non-Detect	0.642
Note: Data have multiple DLs - Use of KM Method is recommended		Number treated as Non-Detect	9
For all methods (except KM, DL/2, and ROS Methods),		Number treated as Detected	4
Observations < Largest ND are treated as NDs		Single DL Non-Detect Percentage	69.23%

Warning: There are only 5 Detected Values in this data

Note: It should be noted that even though bootstrap may be performed on this data set the resulting calculations may not be reliable enough to draw conclusions

It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.

UCL Statistics			
Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.909	Shapiro Wilk Test Statistic	0.894
5% Shapiro Wilk Critical Value	0.762	5% Shapiro Wilk Critical Value	0.762
Data appear Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	87.42	Mean	1.51
SD	181.6	SD	2.59
95% DL/2 (t) UCL	177.2	95% H-Stat (DL/2) UCL	12001
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE yields a negative mean		Mean in Log Scale	1.68
		SD in Log Scale	2.637
		Mean in Original Scale	88.09
		SD in Original Scale	181.3
		95% t UCL	177.7
		95% Percentile Bootstrap UCL	175.8
		95% BCA Bootstrap UCL	192.3
		95% H-UCL	18826

BENZO(B)FLUORANTHENE (Continued)

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only	
k star (bias corrected)	0.33	Data appear Normal at 5% Significance Level	
Theta Star	685.1		
nu star	3.297		
A-D Test Statistic	0.281	Nonparametric Statistics	
5% A-D Critical Value	0.712	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.712	Mean	87.74
5% K-S Critical Value	0.372	SD	174.3
Data appear Gamma Distributed at 5% Significance Level		SE of Mean	54.06
		95% KM (t) UCL	184.1
Assuming Gamma Distribution		95% KM (z) UCL	176.7
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	171.6
Minimum	0.000001	95% KM (bootstrap t) UCL	252.9
Maximum	580	95% KM (BCA) UCL	310.8
Mean	86.88	95% KM (Percentile Bootstrap) UCL	262.3
Median	0.000001	95% KM (Chebyshev) UCL	323.4
SD	181.9	97.5% KM (Chebyshev) UCL	425.4
k star	0.108	99% KM (Chebyshev) UCL	625.7
Theta star	803.2		
Nu star	2.812	Potential UCLs to Use	
AppChi2	0.319	95% KM (t) UCL	184.1
95% Gamma Approximate UCL	765.8	95% KM (Percentile Bootstrap) UCL	262.3
95% Adjusted Gamma UCL	1046		

Note: DL/2 is not a recommended method.

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
For additional insight, the user may want to consult a statistician.

DIBENZO(A,H)ANTHRACENE

General Statistics			
Number of Valid Data	13	Number of Detected Data	4
Number of Distinct Detected Data	4	Number of Non-Detect Data	9
		Percent Non-Detects	69.23%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	2.9	Minimum Detected	1.065
Maximum Detected	79	Maximum Detected	4.369
Mean of Detected	37.23	Mean of Detected	3.083
SD of Detected	32.74	SD of Detected	1.444
Minimum Non-Detect	1.7	Minimum Non-Detect	0.531
Maximum Non-Detect	1.9	Maximum Non-Detect	0.642
Note: Data have multiple DLs - Use of KM Method is recommended		Number treated as Non-Detect	9
For all methods (except KM, DL/2, and ROS Methods),		Number treated as Detected	4
Observations < Largest ND are treated as NDs		Single DL Non-Detect Percentage	69.23%

Warning: There are only 4 Distinct Detected Values in this data
Note: It should be noted that even though bootstrap may be performed on this data set
the resulting calculations may not be reliable enough to draw conclusions

It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.

UCL Statistics			
Normal Distribution Test with Detected Values Only		**Lognormal Distribution Test with Detected Values Only**	
Shapiro Wilk Test Statistic	0.981	Shapiro Wilk Test Statistic	0.914
5% Shapiro Wilk Critical Value	0.748	5% Shapiro Wilk Critical Value	0.748
Data appear Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	12.06	Mean	0.86
SD	23.93	SD	1.703
95% DL/2 (t) UCL	23.89	95% H-Stat (DL/2) UCL	77.48
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE yields a negative mean		Mean in Log Scale	-0.586
		SD in Log Scale	2.872
		Mean in Original Scale	11.6
		SD in Original Scale	24.17
		95% t UCL	23.55
		95% Percentile Bootstrap UCL	23.42
		95% BCA Bootstrap UCL	27.72
		95% H-UCL	8668

DIBENZO(A,H)ANTHRACENE (Continued)

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only	
k star (bias corrected)	0.435	Data appear Normal at 5% Significance Level	
Theta Star	85.63		
nu star	3.478		
A-D Test Statistic	0.242	Nonparametric Statistics	
5% A-D Critical Value	0.666	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.666	Mean	13.46
5% K-S Critical Value	0.402	SD	22.32
Data appear Gamma Distributed at 5% Significance Level		SE of Mean	7.149
		95% KM (t) UCL	26.2
Assuming Gamma Distribution		95% KM (z) UCL	25.22
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	27.83
Minimum	0.000001	95% KM (bootstrap t) UCL	24.78
Maximum	79	95% KM (BCA) UCL	79
Mean	11.45	95% KM (Percentile Bootstrap) UCL	50.23
Median	0.000001	95% KM (Chebyshev) UCL	44.62
SD	24.24	97.5% KM (Chebyshev) UCL	58.11
k star	0.11	99% KM (Chebyshev) UCL	84.6
Theta star	104.4		
Nu star	2.852	Potential UCLs to Use	
AppChi2	0.33	95% KM (t) UCL	26.2
95% Gamma Approximate UCL	99.03	95% KM (Percentile Bootstrap) UCL	50.23
95% Adjusted Gamma UCL	N/A		

Note: DL/2 is not a recommended method.

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
For additional insight, the user may want to consult a statistician.

INDENO(1,2,3-CD)PYRENE

General Statistics			
Number of Valid Data	13	Number of Detected Data	4
Number of Distinct Detected Data	4	Number of Non-Detect Data	9
		Percent Non-Detects	69.23%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	8.7	Minimum Detected	2.163
Maximum Detected	260	Maximum Detected	5.561
Mean of Detected	118.7	Mean of Detected	4.231
SD of Detected	106.5	SD of Detected	1.467
Minimum Non-Detect	1.7	Minimum Non-Detect	0.531
Maximum Non-Detect	1.9	Maximum Non-Detect	0.642
Note: Data have multiple DLs - Use of KM Method is recommended		Number treated as Non-Detect	9
For all methods (except KM, DL/2, and ROS Methods),		Number treated as Detected	4
Observations < Largest ND are treated as NDs		Single DL Non-Detect Percentage	69.23%

Warning: There are only 4 Distinct Detected Values in this data
Note: It should be noted that even though bootstrap may be performed on this data set
the resulting calculations may not be reliable enough to draw conclusions

It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.

UCL Statistics			
Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.971	Shapiro Wilk Test Statistic	0.91
5% Shapiro Wilk Critical Value	0.748	5% Shapiro Wilk Critical Value	0.748
Data appear Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	37.13	Mean	1.213
SD	77.7	SD	2.219
95% DL/2 (t) UCL	75.53	95% H-Stat (DL/2) UCL	1163
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE yields a negative mean		Mean in Log Scale	0.522
		SD in Log Scale	2.904
		Mean in Original Scale	36.96
		SD in Original Scale	77.78
		95% t UCL	75.41
		95% Percentile Bootstrap UCL	73.29
		95% BCA Bootstrap UCL	95.92
		95% H-UCL	32509

INDENO(1,2,3-CD)PYRENE (Continued)

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only	
k star (bias corrected)	0.43	Data appear Normal at 5% Significance Level	
Theta Star	276.3		
nu star	3.436		
A-D Test Statistic	0.246	Nonparametric Statistics	
5% A-D Critical Value	0.666	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.666	Mean	42.54
5% K-S Critical Value	0.402	SD	72.06
Data appear Gamma Distributed at 5% Significance Level		SE of Mean	23.08
		95% KM (t) UCL	83.67
Assuming Gamma Distribution		95% KM (z) UCL	80.5
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	91.37
Minimum	0.000001	95% KM (bootstrap t) UCL	81.63
Maximum	260	95% KM (BCA) UCL	160
Mean	36.52	95% KM (Percentile Bootstrap) UCL	150
Median	0.000001	95% KM (Chebyshev) UCL	143.1
SD	78.01	97.5% KM (Chebyshev) UCL	186.7
k star	0.106	99% KM (Chebyshev) UCL	272.2
Theta star	344.2		
Nu star	2.758	Potential UCLs to Use	
AppChi2	0.305	95% KM (t) UCL	83.67
95% Gamma Approximate UCL	330.7	95% KM (Percentile Bootstrap) UCL	150
95% Adjusted Gamma UCL	N/A		

Note: DL/2 is not a recommended method.

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
For additional insight, the user may want to consult a statistician.

ARSENIC

General Statistics

Number of Valid Data	6	Number of Detected Data	5
Number of Distinct Detected Data	5	Number of Non-Detect Data	1
Number of Missing Values	1	Percent Non-Detects	16.67%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.491	Minimum Detected	-0.712
Maximum Detected	1.58	Maximum Detected	0.457
Mean of Detected	0.972	Mean of Detected	-0.105
SD of Detected	0.419	SD of Detected	0.443
Minimum Non-Detect	0.38	Minimum Non-Detect	-0.968
Maximum Non-Detect	0.38	Maximum Non-Detect	-0.968

Warning: There are only 5 Detected Values in this data
Note: It should be noted that even though bootstrap may be performed on this data set
the resulting calculations may not be reliable enough to draw conclusions

It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.958	Shapiro Wilk Test Statistic	0.978
5% Shapiro Wilk Critical Value	0.762	5% Shapiro Wilk Critical Value	0.762
Data appear Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.842	Mean	-0.364
SD	0.492	SD	0.749
95% DL/2 (t) UCL	1.246	95% H-Stat (DL/2) UCL	2.791
Maximum Likelihood Estimate(MLE) Method		Log ROS Method	
Mean	0.831	Mean in Log Scale	-0.295
SD	0.473	SD in Log Scale	0.612
95% MLE (t) UCL	1.22	Mean in Original Scale	0.858
95% MLE (Tiku) UCL	1.228	SD in Original Scale	0.467
		95% t UCL	1.242
		95% Percentile Bootstrap UCL	1.165
		95% BCA Bootstrap UCL	1.188
		95% H UCL	1.998

ARSENIC (Continued)

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only	
k star (bias corrected)	2.812	Data appear Normal at 5% Significance Level	
Theta Star	0.346		
nu star	28.12		
A-D Test Statistic	0.22	Nonparametric Statistics	
5% A-D Critical Value	0.68	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.68	Mean	0.892
5% K-S Critical Value	0.358	SD	0.386
Data appear Gamma Distributed at 5% Significance Level		SE of Mean	0.176
		95% KM (t) UCL	1.247
Assuming Gamma Distribution		95% KM (z) UCL	1.182
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	1.246
Minimum	0.000001	95% KM (bootstrap t) UCL	1.437
Maximum	1.58	95% KM (BCA) UCL	1.206
Mean	0.81	95% KM (Percentile Bootstrap) UCL	1.195
Median	0.805	95% KM (Chebyshev) UCL	1.66
SD	0.546	97.5% KM (Chebyshev) UCL	1.993
k star	0.268	99% KM (Chebyshev) UCL	2.646
Theta star	3.02		
Nu star	3.218	Potential UCLs to Use	
AppChi2	0.44	95% KM (t) UCL	1.247
95% Gamma Approximate UCL	5.927	95% KM (Percentile Bootstrap) UCL	1.195
95% Adjusted Gamma UCL	13.08		

Note: DL/2 is not a recommended method.

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
For additional insight, the user may want to consult a statistician.

Groundwater

	General UCL Statistics for Data Sets with Non-Detects
User Selected Options	
From File	C:\Work Folders\Projects\Calverton\Site 2\EPCs\ProUCL Data - Groundwater.xls.wst
Full Precision	OFF
Confidence Coefficient	95%
Number of Bootstrap Operations	2000

1,4-DICHLOROBENZENE

General Statistics

Number of Valid Data	23	Number of Detected Data	1
Number of Distinct Detected Data	1	Number of Non-Detect Data	22
Number of Missing Values	3	Percent Non-Detects	95.65%

Warning: Only one distinct data value was detected! ProUCL (or any other software) should not be used on such a data set!
It is suggested to use alternative site specific values determined by the Project Team to estimate environmental parameters (e.g., EPC, BTV).

The data set for variable 1,4-DICHLOROBENZENE was not processed!

CHLOROFORM

General Statistics

Number of Valid Data	23	Number of Detected Data	4
Number of Distinct Detected Data	4	Number of Non-Detect Data	19
Number of Missing Values	3	Percent Non-Detects	82.61%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.5	Minimum Detected	-0.693
Maximum Detected	0.79	Maximum Detected	-0.236
Mean of Detected	0.61	Mean of Detected	-0.511
SD of Detected	0.133	SD of Detected	0.21
Minimum Non-Detect	0.5	Minimum Non-Detect	-0.693
Maximum Non-Detect	0.5	Maximum Non-Detect	-0.693

Warning: There are only 4 Distinct Detected Values in this data
Note: It should be noted that even though bootstrap may be performed on this data set
the resulting calculations may not be reliable enough to draw conclusions

It is recommended to have 10-15 or more distinct observations for accurate and meaningful results.

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.895	Shapiro Wilk Test Statistic	0.911
5% Shapiro Wilk Critical Value	0.748	5% Shapiro Wilk Critical Value	0.748
Data appear Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.313	Mean	-1.234
SD	0.148	SD	0.348
95% DL/2 (t) UCL	0.366	95% H-Stat (DL/2) UCL	0.355
Maximum Likelihood Estimate(MLE) Method		Log ROS Method	
Mean	0.291	Mean in Log Scale	-1.432
SD	0.22	SD in Log Scale	0.61
95% MLE (t) UCL	0.369	Mean in Original Scale	0.285
95% MLE (Tiku) UCL	0.504	SD in Original Scale	0.181
		95% t UCL	0.35
		95% Percentile Bootstrap UCL	0.349
		95% BCA Bootstrap UCL	0.355
		95% H UCL	0.377

CHLOROFORM (Continued)

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only	
k star (bias corrected)	7.599	Data appear Normal at 5% Significance Level	
Theta Star	0.0803		
nu star	60.8		
A-D Test Statistic	0.351	Nonparametric Statistics	
5% A-D Critical Value	0.657	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.657	Mean	0.519
5% K-S Critical Value	0.394	SD	0.0636
Data appear Gamma Distributed at 5% Significance Level		SE of Mean	0.0153
		95% KM (t) UCL	0.545
Assuming Gamma Distribution		95% KM (z) UCL	0.544
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	0.54
Minimum	0.000001	95% KM (bootstrap t) UCL	0.549
Maximum	0.79	95% KM (BCA) UCL	0.79
Mean	0.121	95% KM (Percentile Bootstrap) UCL	0.644
Median	0.000001	95% KM (Chebyshev) UCL	0.586
SD	0.24	97.5% KM (Chebyshev) UCL	0.615
k star	0.114	99% KM (Chebyshev) UCL	0.671
Theta star	1.06		
Nu star	5.237	Potential UCLs to Use	
AppChi2	1.263	95% KM (t) UCL	0.545
95% Gamma Approximate UCL	0.5	95% KM (Percentile Bootstrap) UCL	0.644
95% Adjusted Gamma UCL	N/A		

Note: DL/2 is not a recommended method.

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
For additional insight, the user may want to consult a statistician.

CIS-1,2-DICHLOROETHENE

General Statistics

Number of Valid Data	26	Number of Detected Data	3
Number of Distinct Detected Data	3	Number of Non-Detect Data	23
		Percent Non-Detects	88.46%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.54	Minimum Detected	-0.616
Maximum Detected	3.45	Maximum Detected	1.238
Mean of Detected	1.598	Mean of Detected	0.135
SD of Detected	1.609	SD of Detected	0.976
Minimum Non-Detect	0.5	Minimum Non-Detect	-0.693
Maximum Non-Detect	0.5	Maximum Non-Detect	-0.693

Warning: There are only 3 Distinct Detected Values in this data set
The number of detected data may not be adequate enough to perform GOF tests, bootstrap, and ROS methods.
Those methods will return a 'N/A' value on your output display!

It is necessary to have 4 or more Distinct Values for bootstrap methods.
However, results obtained using 4 to 9 distinct values may not be reliable.
It is recommended to have 10 to 15 or more observations for accurate and meaningful results and estimates.

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.818	Shapiro Wilk Test Statistic	0.902
5% Shapiro Wilk Critical Value	0.767	5% Shapiro Wilk Critical Value	0.767
Data appear Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.406	Mean	-1.211
SD	0.633	SD	0.567
95% DL/2 (t) UCL	0.617	95% H-Stat (DL/2) UCL	0.44
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE yields a negative mean		Mean in Log Scale	-5.552
		SD in Log Scale	3.31
		Mean in Original Scale	0.2
		SD in Original Scale	0.688
		95% t UCL	0.43
		95% Percentile Bootstrap UCL	0.444
		95% BCA Bootstrap UCL	0.611
		95% H-UCL	57.49

CIS-1,2-DICHLOROETHENE (Continued)

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only	
k star (bias corrected)	N/A	Data appear Normal at 5% Significance Level	
Theta Star	N/A		
nu star	N/A		
A-D Test Statistic	N/A	Nonparametric Statistics	
5% A-D Critical Value	N/A	Kaplan-Meier (KM) Method	
K-S Test Statistic	N/A	Mean	0.662
5% K-S Critical Value	N/A	SD	0.56
Data not Gamma Distributed at 5% Significance Level		SE of Mean	0.134
		95% KM (t) UCL	0.892
Assuming Gamma Distribution		95% KM (z) UCL	0.883
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	0.879
Minimum	N/A	95% KM (bootstrap t) UCL	1.546
Maximum	N/A	95% KM (BCA) UCL	3.45
Mean	N/A	95% KM (Percentile Bootstrap) UCL	3.45
Median	N/A	95% KM (Chebyshev) UCL	1.248
SD	N/A	97.5% KM (Chebyshev) UCL	1.502
k star	N/A	99% KM (Chebyshev) UCL	2
Theta star	N/A		
Nu star	N/A	Potential UCLs to Use	
AppChi2	N/A	95% KM (t) UCL	0.892
95% Gamma Approximate UCL	N/A	95% KM (Percentile Bootstrap) UCL	3.45
95% Adjusted Gamma UCL	N/A		

Note: DL/2 is not a recommended method.

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
For additional insight, the user may want to consult a statistician.

ETHYLBENZENE

General Statistics

Number of Valid Data	26	Number of Detected Data	1
Number of Distinct Detected Data	1	Number of Non-Detect Data	25
		Percent Non-Detects	96.15%

Warning: Only one distinct data value was detected! ProUCL (or any other software) should not be used on such a data set!
It is suggested to use alternative site specific values determined by the Project Team to estimate environmental parameters (e.g., EPC, BTV).

The data set for variable ETHYLBENZENE was not processed!

M+P-XYLENES

General Statistics

Number of Valid Data	26	Number of Detected Data	1
Number of Distinct Detected Data	1	Number of Non-Detect Data	25
		Percent Non-Detects	96.15%

Warning: Only one distinct data value was detected! ProUCL (or any other software) should not be used on such a data set!
It is suggested to use alternative site specific values determined by the Project Team to estimate environmental parameters (e.g., EPC, BTV).

The data set for variable M+P-XYLENES was not processed!

O-XYLENE

General Statistics

Number of Valid Data	26	Number of Detected Data	2
Number of Distinct Detected Data	2	Number of Non-Detect Data	24
		Percent Non-Detects	92.31%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	2.9	Minimum Detected	1.065
Maximum Detected	16	Maximum Detected	2.773
Mean of Detected	9.45	Mean of Detected	1.919
SD of Detected	9.263	SD of Detected	1.208
Minimum Non-Detect	0.5	Minimum Non-Detect	-0.693
Maximum Non-Detect	0.5	Maximum Non-Detect	-0.693

Warning: Data set has only 2 Distinct Detected Values.
This may not be adequate enough to compute meaningful and reliable test statistics and estimates.
The Project Team may decide to use alternative site specific values to estimate environmental parameters (e.g., EPC, BTV).

Unless Data Quality Objectives (DQOs) have been met, it is suggested to collect additional observations.

The number of detected data may not be adequate enough to perform GOF tests, bootstrap, and ROS methods.
Those methods will return a 'N/A' value on your output display!

It is necessary to have 4 or more Distinct Values for bootstrap methods.
However, results obtained using 4 to 9 distinct values may not be reliable.
It is recommended to have 10 to 15 or more observations for accurate and meaningful results and estimates.

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	N/A	Shapiro Wilk Test Statistic	N/A
5% Shapiro Wilk Critical Value	N/A	5% Shapiro Wilk Critical Value	N/A
Data not Normal at 5% Significance Level		Data not Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.958	Mean	-1.132
SD	3.112	SD	0.93
95% DL/2 (t) UCL	2	95% H-Stat (DL/2) UCL	0.779
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE method failed to converge properly		Mean in Log Scale	N/A
		SD in Log Scale	N/A
		Mean in Original Scale	N/A
		SD in Original Scale	N/A
		95% t UCL	N/A
		95% Percentile Bootstrap UCL	N/A
		95% BCA Bootstrap UCL	N/A
		95% H-UCL	N/A

O-XYLENE (Continued)

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only	
k star (bias corrected)	N/A	Data do not follow a Discernable Distribution (0.05)	
Theta Star	N/A		
nu star	N/A		
A-D Test Statistic	N/A	Nonparametric Statistics	
5% A-D Critical Value	N/A	Kaplan-Meier (KM) Method	
K-S Test Statistic	N/A	Mean	3.404
5% K-S Critical Value	N/A	SD	2.519
Data not Gamma Distributed at 5% Significance Level		SE of Mean	0.699
		95% KM (t) UCL	4.597
Assuming Gamma Distribution		95% KM (z) UCL	4.553
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	N/A
Minimum	N/A	95% KM (bootstrap t) UCL	N/A
Maximum	N/A	95% KM (BCA) UCL	N/A
Mean	N/A	95% KM (Percentile Bootstrap) UCL	N/A
Median	N/A	95% KM (Chebyshev) UCL	6.449
SD	N/A	97.5% KM (Chebyshev) UCL	7.767
k star	N/A	99% KM (Chebyshev) UCL	10.36
Theta star	N/A		
Nu star	N/A	Potential UCLs to Use	
AppChi2	N/A	95% KM (BCA) UCL	N/A
95% Gamma Approximate UCL	N/A		
95% Adjusted Gamma UCL	N/A		

Note: DL/2 is not a recommended method.

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
For additional insight, the user may want to consult a statistician.

TRICHLOROETHENE

General Statistics			
Number of Valid Data	26	Number of Detected Data	3
Number of Distinct Detected Data	3	Number of Non-Detect Data	23
		Percent Non-Detects	88.46%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.495	Minimum Detected	-0.703
Maximum Detected	11.5	Maximum Detected	2.442
Mean of Detected	5.065	Mean of Detected	0.967
SD of Detected	5.735	SD of Detected	1.582
Minimum Non-Detect	0.5	Minimum Non-Detect	-0.693
Maximum Non-Detect	0.5	Maximum Non-Detect	-0.693

Warning: There are only 3 Distinct Detected Values in this data set
The number of detected data may not be adequate enough to perform GOF tests, bootstrap, and ROS methods.
Those methods will return a 'N/A' value on your output display!

It is necessary to have 4 or more Distinct Values for bootstrap methods.
However, results obtained using 4 to 9 distinct values may not be reliable.
It is recommended to have 10 to 15 or more observations for accurate and meaningful results and estimates.

UCL Statistics			
Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.921	Shapiro Wilk Test Statistic	0.989
5% Shapiro Wilk Critical Value	0.767	5% Shapiro Wilk Critical Value	0.767
Data appear Normal at 5% Significance Level		Data appear Lognormal at 5% Significance Level	
Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.806	Mean	-1.115
SD	2.257	SD	0.888
95% DL/2 (t) UCL	1.562	95% H-Stat (DL/2) UCL	0.741
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE method failed to converge properly		Mean in Log Scale	-0.625
		SD in Log Scale	1.275
		Mean in Original Scale	1.225
		SD in Original Scale	2.256
		95% t UCL	1.981
		95% Percentile Bootstrap UCL	2.018
		95% BCA Bootstrap UCL	2.43
		95% H-UCL	2.515

TRICHLOROETHENE (Continued)

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only	
k star (bias corrected)	N/A	Data appear Normal at 5% Significance Level	
Theta Star	N/A		
nu star	N/A		
A-D Test Statistic	N/A	Nonparametric Statistics	
5% A-D Critical Value	N/A	Kaplan-Meier (KM) Method	
K-S Test Statistic	N/A	Mean	1.022
5% K-S Critical Value	N/A	SD	2.159
Data not Gamma Distributed at 5% Significance Level		SE of Mean	0.519
		95% KM (t) UCL	1.908
Assuming Gamma Distribution		95% KM (z) UCL	1.875
Gamma ROS Statistics using Extrapolated Data		95% KM (jackknife) UCL	2.818
Minimum	N/A	95% KM (bootstrap t) UCL	2.07
Maximum	N/A	95% KM (BCA) UCL	11.5
Mean	N/A	95% KM (Percentile Bootstrap) UCL	11.5
Median	N/A	95% KM (Chebyshev) UCL	3.283
SD	N/A	97.5% KM (Chebyshev) UCL	4.261
k star	N/A	99% KM (Chebyshev) UCL	6.182
Theta star	N/A		
Nu star	N/A	Potential UCLs to Use	
AppChi2	N/A	95% KM (t) UCL	1.908
95% Gamma Approximate UCL	N/A	95% KM (Percentile Bootstrap) UCL	11.5
95% Adjusted Gamma UCL	N/A		

Note: DL/2 is not a recommended method.

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
For additional insight, the user may want to consult a statistician.

VINYL CHLORIDE

General Statistics

Number of Valid Data	26	Number of Detected Data	1
Number of Distinct Detected Data	1	Number of Non-Detect Data	25
		Percent Non-Detects	96.15%

Warning: Only one distinct data value was detected! ProUCL (or any other software) should not be used on such a data set!
It is suggested to use alternative site specific values determined by the Project Team to estimate environmental parameters (e.g., EPC, BTV).

The data set for variable VINYL CHLORIDE was not processed!

APPENDIX H.4

SAMPLE CALCULATIONS

CALCULATION WORKSHEET

CLIENT: NWIRP CALVERTON, CALVERTON, NEW YORK		**JOB NUMBER:** 112G02750
SUBJECT: CALCULATION OF INTAKE/RISK FROM INCIDENTAL INGESTION OF SOIL INDUSTRIAL WORKERS		
BASED ON: USEPA, DECEMBER 1989		
BY: R. JUPIN	**CHECKED BY:** L. Cufani	**DATE:** 5/14/2012

PURPOSE: To estimate intake, carcinogenic and noncarcinogenic risks from incidental ingestion of soil.

EQUATION:

$$IEX = \frac{CS \times IR \times EF \times ED \times FI \times CF}{BW \times AT}$$

Where:

IEX	=	estimated exposure intake (mg/kg/day)
Cs	=	exposure point concentration in soil (mg/kg)
IR	=	incidental ingestion rate (mg/day)
EF	=	exposure frequency (days/year)
ED	=	exposure duration (years)
FI	=	fraction ingested from contaminated source (unitless)
CF	=	conversion factor (1E-06 kg/mg)
BW	=	body weight (kg)
AT	=	averaging time (days)
CSFo	=	oral carcinogenic slope factor ($(mg/kg/day)^{-1}$)
RfDo	=	oral noncarcinogenic reference dose (mg/kg/day)

RISKS:

ILCR (Carcinogens) = Intake (mg/kg/day) x CSFo (mg/kg/day)-1
HQ (Noncarcinogens) = Intake (mg/kg/day) / RFDo (mg/kg/day)

ASSUMPTIONS:

Cs	=	0.125	mg/kg	Chemical: Benzo(a)pyrene
IR	=	100	mg/day	
EF	=	250	days/year	
ED	=	25	years	
FI	=	1		
CF	=	1E-06	kg/mg	
BW	=	70	kg	
ATc	=	25,550	days	
ATnc	=	9125	days	
CSFo	=	7.3E+00	$(mg/kg/day)^{-1}$	
RfDo	=	NA	(mg/kg/day)	

CLIENT: NWIRP CALVERTON, CALVERTON, NEW YORK		**JOB NUMBER:** 112G02750
SUBJECT: CALCULATION OF INTAKE/RISK FROM INCIDENTAL INGESTION OF SOIL INDUSTRIAL WORKERS		
BASED ON: USEPA, DECEMBER 1989		
BY: R. JUPIN	**CHECKED BY:** L. Ciafani	**DATE:** 5/14/2012

EXAMPLE CARCINOGENIC CALCULATION

$$IEXc = \frac{0.125 \text{ mg/kg} \times 100 \text{ mg/day} \times 250 \text{ days/year} \times 25 \text{ years} \times 1 \times 1E\text{-}06 \text{ kg/mg}}{70 \text{ kg} \times 25550 \text{ days}}$$

IEXc = 4.37E-08 mg/kg/day

ILCR = 4.37E-08 mg/kg/day x 7.30E+00 (mg/kg/day)-1 = Incremental Lifetime Cancer Risk

ILCR = 3.2E-07

EXAMPLE NONCARCINOGENIC CALCULATION

$$IEXnc = \frac{0.125 \text{ mg/kg} \times 100 \text{ mg/day} \times 250 \text{ days/year} \times 25 \text{ years} \times 1 \times 1E\text{-}06 \text{ kg/mg}}{70 \text{ kg} \times 9125 \text{ days}}$$

IEXnc = 1.22E-07 mg/kg/day

HQ = No oral RfD is available for benzo(a)pyrene.

CALCULATION WORKSHEET

CLIENT: NWIRP CALVERTON, CALVERTON, NEW YORK		**JOB NUMBER:** 112G02750
SUBJECT: CALCULATION OF INTAKE/RISK FROM DERMAL CONTACT WITH SOIL INDUSTRIAL WORKERS		
BASED ON: USEPA, JULY 2004		
BY: R. JUPIN	**CHECKED BY:** L. Cuffa	**DATE:** 5/14/2012

PURPOSE: To estimate intake, carcinogenic and noncarcinogenic risks from dermal contact with soil.

EQUATION:

$$DEX = \frac{Cs \times CF \times SA \times AF \times ABS \times EF \times ED}{BW \times AT}$$

Where:

DEX	=	estimated exposure intake (mg/kg/day)
Cs	=	exposure point concentration in soil (mg/kg)
CF	=	conversion factor (1E-06 kg/mg)
SA	=	skin surface available for contact (cm2/day)
ABS	=	absorption factor (unitless)
AF	=	adherence factor (mg/cm2)
EF	=	exposure frequency (days/year)
ED	=	exposure duration (years)
BW	=	body weight (kg)
AT	=	averaging time (days)
CSFd	=	dermal carcinogenic slope factor ($(mg/kg/day)^{-1}$)
RfDd	=	dermal noncarcinogenic reference dose (mg/kg/day)

RISKS:

ILCR (Carcinogens) = Intake (mg/kg/day) x CSFd (mg/kg/day)-1
HQ (Noncarcinogens) = Intake (mg/kg/day) / RFDd (mg/kg/day)

ASSUMPTIONS:

Cs	=	0.125	mg/kg	Chemical: Benzo(a)pyrene
CF	=	1E-06	kg/mg	
SA	=	3,300	cm^2/day	
AF	=	0.2	mg/cm^2	
ABS	=	0.13		
EF	=	250	days/year	
ED	=	25	years	
BW	=	70	kg	
ATc	=	25,550	days	
ATnc	=	9125	days	
CSFd	=	7.3E+00	$(mg/kg/day)^{-1}$	
RfDd	=	NA	(mg/kg/day)	

CLIENT: NWIRP CALVERTON, CALVERTON, NEW YORK		**JOB NUMBER:** 112G02750
SUBJECT: CALCULATION OF INTAKE/RISK FROM DERMAL CONTACT WITH SOIL INDUSTRIAL WORKERS		
BASED ON: USEPA, JULY 2004		
BY: R. JUPIN	**CHECKED BY:** L. Ciafani	**DATE:** 5/14/2012

EXAMPLE CARCINOGENIC CALCULATION

$$DEXc = \frac{0.125 \text{ mg/kg} \times 1E\text{-}06 \text{ kg/mg} \times 3300 \text{ cm2/day} \times 0.2 \text{ mg/cm2} \times 0.13 \times 250 \text{ days/year} \times 25 \text{ years}}{70 \text{ kg} \times 25550 \text{ days}}$$

DEXc = 3.75E-08 mg/kg/day

ILCR = 3.75E-08 mg/kg/day x 7.30E+00 (mg/kg/day)-1 = Incremental Lifetime Cancer Risk

ILCR = 2.7E-07

EXAMPLE NONCARCINOGENIC CALCULATION

$$DEXnc = \frac{0.125 \text{ mg/kg} \times 1E\text{-}06 \text{ kg/mg} \times 3300 \text{ cm2/day} \times 0.2 \text{ mg/cm2} \times 0.13 \times 250 \text{ days/year} \times 25 \text{ years}}{70 \text{ kg} \times 9125 \text{ days}}$$

DEXnc = 1.05E-07 mg/kg/day

HQ = No dermal RfD is available for benzo(a)pyrene.

CLIENT: NWIRP CALVERTON, CALVERTON, NEW YORK		**JOB NUMBER:** 112G02750
SUBJECT: CALCULATION OF INTAKE/RISK FROM INHALATION OF FUGATIVE DUST EMISSIONS INDUSTRIAL WORKERS		
BASED ON: USEPA, JANUARY 2009		
BY: R. JUPIN	**CHECKED BY:** L. Cufar	**DATE:** 5/14/2012

PURPOSE: To estimate intake, carcinogenic and noncarcinogenic risks from inhalation of soil.

EQUATION:

$$EC = \frac{Ca \times ET \times EF \times ED}{AT \times 24 \text{ hours/day}}$$

Where:

EC	=	exposure concentration (mg/m3)
Ca	=	exposure point concentration in air (mg/m3)
	=	Cs x 1/PEF
Cs	=	exposure point concentration in soil (mg/kg)
PEF	=	particulate emission factor (m3/kg)
ET	=	exposure time (hrs/day)
EF	=	exposure frequency (days/year)
ED	=	exposure duration (years)
BW	=	body weight (kg)
AT	=	averaging time (hours)
IUR	=	inhalation unit risk ($(ug/m3)^{-1}$)
RfC	=	inhalation reference concentration (mg/m3)

RISKS:

ILCR (Carcinogens) = Exposure Concentration (mg/m3) x IURi (ug/m3)-1 x 1000 ug/mg
HQ (Noncarcinogens) = Exposure Concentration (mg/m3) / RFCi (mg/m3)

ASSUMPTIONS:

Cs	=	0.125	mg/kg	Chemical: Benzo(a)pyrene
PEF	=	1.21E+09	m3/kg	
Ca	=	1.03E-10	mg/m3	
ET	=	8	hours/day	
EF	=	250	days/year	
ED	=	25	years	
ATc	=	25,550	days	
ATnc	=	9,125	days	
IUR	=	1.1E-03	$(ug/m3)^{-1}$	
RfC	=	NA	(mg/m3)	

CLIENT: NWIRP CALVERTON, CALVERTON, NEW YORK		**JOB NUMBER:** 112G02750
SUBJECT: CALCULATION OF INTAKE/RISK FROM INHALATION OF FUGATIVE DUST EMISSIONS INDUSTRIAL WORKERS		
BASED ON: USEPA, JANUARY 2009		
BY: R. JUPIN	**CHECKED BY:** L. Cifan	**DATE:** 5/14/2012

EXAMPLE CARCINOGENIC CALCULATION

$$IEXc = \frac{1.03E\text{-}10 \text{ mg/m3} \times 8 \text{ hours/day} \times 250 \text{ days/year} \times 25 \text{ years}}{25550 \text{ days} \times 24 \text{ hours/day}}$$

IEXc = 8.42E-12 mg/m3

ILCR = 8.42E-12 mg/m3 x 1.10E-03 (ug/m3)-1 x 1000 ug/mg = Incremental Lifetime Cancer Risk

ILCR = 9.3E-12

EXAMPLE NONCARCINOGENIC CALCULATION

$$IEXnc = \frac{1.03E\text{-}10 \text{ mg/m3} \times 8 \text{ hours/day} \times 250 \text{ days/year} \times 25 \text{ years}}{9125 \text{ days} \times 24 \text{ hours/day}}$$

IEXnc = 2.36E-11 mg/m3

HQ = No inhalation RfC is available for benzo(a)pyrene.

CLIENT:	JOB NUMBER:
NWIRP CALVERTON, CALVERTON, NEW YORK	112G02750

SUBJECT:
CALCULATION OF PARTICULATE EMISSION FACTOR FOR CONSTRUCTION WORKERS

BASED ON:
Supplemental Guidance for Developing Soil Screening Levels for Superfund Sites (USEPA, December 2002)

BY:	CHECKED BY:	DATE:
R. JUPIN	L. Cuffari	5/14/2012

Equation 5-5
Derivation of the Particulate Emission Factor
Construction Scenario - Construction Worker

$$PEF_{sc} = Q/C_{sr} \times \frac{1}{F_D} \times \left[\frac{T \times A_R}{556 \times (W/3)^{0.4} \times \frac{(365d/yr - p)}{365d/yr} \times \Sigma VKT} \right]$$

Parameter/Definition (units)	Default
PEF_{sc}/subchronic road particulate emission factor (m^3/kg)	site-specific
Q/C_{sr}/ inverse of the ratio of the 1-h geometric mean air concentration to the emission flux along a straight road segment bisecting a square site (g/m^2-s per kg/m^3)	23.02* (Equation 5-6)
F_D/dispersion correction factor (unitless)	0.185 (Appendix E)
T/total time over which construction occurs (s)	site-specific
A_R/surface area of contaminated road segment (m^2) L_R/length of road segment (ft) W_R/width of road segment (ft)	274.213 ($A_R = L_R \times W_R \times 0.092903 m^2/ft^2$)
W/mean vehicle weight (tons)	site-specific
p/number of days with at least 0.01 inches of precipitation (days/year)	site-specific (Exhibit 5-2)
ΣVKT/sum of fleet vehicle kilometers traveled during the exposure duration (km)	site-specific

* Assumes a 0.5 acre site

Calculation of PEF for Construction Workers

Q/C	23.02	(g/m^2-s per kg/m^3)	
Fd	0.185	dispersion correction factor (unitless)	
T	7.20E+06	sec	3600 sec/hr x 8hr/day x 250 days/yr
A_R	274.213	m^2	
W	8	tons	
p	135	day/year	
VKT	337.5	km	30 vehicles x 0.045 km/day x 250 days

PEF = 1.40E+06 m^3/kg

CALCULATION WORKSHEET

CLIENT: NWIRP CALVERTON, CALVERTON, NEW YORK		**JOB NUMBER:** 112G02750
SUBJECT: CALCULATION OF INTAKE/RISK FROM INGESTION OF GROUNDWATER CHILD RESIDENTS		
BASED ON: USEPA, DECEMBER 1989		
BY: R. JUPIN	**CHECKED BY:** L. Ciofani	**DATE:** 5/14/2012

PURPOSE: To estimate intake, carcinogenic and noncarcinogenic risks from ingestion of groundwater.

EQUATION:

$$IEX = \frac{Cgw \times CF \times IR \times EF \times ED}{BW \times AT}$$

Where:

IEX	=	estimated exposure intake (mg/kg/day)
Cgw	=	exposure point concentration in groundwater (ug/L)
CF	=	conversion factor (1.0E-3 mg/ug)
IR	=	ingestion rate (L/day)
EF	=	exposure frequency (days/year)
ED	=	exposure duration (years)
BW	=	body weight (kg)
AT	=	averaging time (days)
CSFo	=	oral carcinogenic slope factor ($(mg/kg/day)^{-1}$)
RfDo	=	oral noncarcinogenic reference dose (mg/kg/day)

RISKS:

ILCR (Carcinogens) = Intake (mg/kg/day) x CSFo (mg/kg/day)-1
HQ (Noncarcinogens) = Intake (mg/kg/day) / RFDo (mg/kg/day)

ASSUMPTIONS:

Cgw	=	4.8	ug/L	Chemical: Ethylbenzene
IR	=	1	L/day	
CF	=	1.0E-03	mg/ug	
EF	=	350	days/year	
ED	=	6	years	
BW	=	15	kg	
ATc	=	25,550	days	
ATnc	=	2,190	days	
CSFo	=	1.1E-02	$(mg/kg/day)^{-1}$	
RfDo	=	1.0E-01	(mg/kg/day)	

CLIENT: NWIRP CALVERTON, CALVERTON, NEW YORK		**JOB NUMBER:** 112G02750
SUBJECT: CALCULATION OF INTAKE/RISK FROM INGESTION OF GROUNDWATER CHILD RESIDENTS		
BASED ON: USEPA, DECEMBER 1989		
BY: R. JUPIN	**CHECKED BY:** L. Cuofani	**DATE:** 5/14/2012

EXAMPLE CARCINOGENIC CALCULATION

$$IEXc = \frac{4.8\ ug/L \times 0.001\ mg/ug \times 1\ L/day \times 350\ days/year \times 6\ years}{15\ kg \times 25550\ days}$$

IEXc = 2.63E-05 mg/kg/day

ILCR = 2.63E-05 mg/kg/day x 1.10E-02 (mg/kg/day)-1 = Incremental Lifetime Cancer Risk

ILCR = 2.9E-07

EXAMPLE NONCARCINOGENIC CALCULATION

$$IEXnc = \frac{4.8\ ug/L \times 0.001\ mg/ug \times 1\ L/day \times 350\ days/year \times 6\ years}{15\ kg \times 2190\ days}$$

IEXnc = 3.07E-04 mg/kg/day

$$HQ = \frac{3.07E\text{-}04\ mg/kg/day}{1.00E\text{-}01\ (mg/kg/day)} = \text{Hazard Quotient}$$

HQ = 3.1E-03

CLIENT: NWIRP CALVERTON, CALVERTON, NEW YORK		**JOB NUMBER:** 112G02750
SUBJECT: CALCULATION OF INTAKE/RISK FROM DERMAL CONTACT WITH GROUNDWATER CHILD RESIDENTS		
BASED ON: USEPA, DECEMBER 1989, JULY 2004		
BY: R. JUPIN	**CHECKED BY:** L. Cuffari	**DATE:** 5/14/2012

PURPOSE: To estimate intake, carcinogenic and noncarcinogenic risks from dermal contact with groundwater.

EQUATION:

$$DAD = \frac{DAevent \times EV \times ED \times EF \times A}{BW \times AT}$$

Where:

DAD	=	dermally absorbed dose (mg/kg/day)
DAevent	=	absorbed dose per event (mg/cm^2/event)
EV	=	event frequency (events/day)
EF	=	exposure frequency (days/year)
ED	=	exposure duration (years)
A	=	skin surface available for contact (cm^2)
BW	=	body weight (kg)
AT	=	averaging time (days)
CSFd	=	dermal carcinogenic slope factor ($(mg/kg/day)^{-1}$)
RfDd	=	dermal noncarcinogenic reference dose (mg/kg/day)

RISKS:

ILCR (Carcinogens) = DAD (mg/kg/day) x CSFd (mg/kg/day)-1
HQ (Noncarcinogens) = DAD (mg/kg/day) / RFDd (mg/kg/day)

EQUATIONS for DAevent:

For Inorganics:

DAevent = Kp x Cw x CF x tevent

For Organics:

$$\text{If } tevent \le t^*, \text{ then}: DAevent = 2 \times FA \times Kp \times Cw \times CF \times \sqrt{\frac{6 \times tau \times tevent}{\pi}}$$

$$\text{If } tevent > t^*, \text{ then}: DAevent = FA \times Kp \times Cw \times CF \times \left[\frac{tevent}{1+B} + 2 \times tau \times \left(\frac{1+3B+3B^2}{(1+B)^2}\right)\right]$$

CLIENT: NWIRP CALVERTON, CALVERTON, NEW YORK		**JOB NUMBER:** 112G02750
SUBJECT: CALCULATION OF INTAKE/RISK FROM DERMAL CONTACT WITH GROUNDWATER CHILD RESIDENTS		
BASED ON: USEPA, DECEMBER 1989, JULY 2004		
BY: R. JUPIN	**CHECKED BY:** L. Ciafani	**DATE:** 5/14/2012

Where:

Kp	=	permeability coefficient from water (cm/hr)
FA	=	fraction absorbed water (dimensionless)
Cgw	=	concentration of chemical in groundwater (mg/L)
tevent	=	duration of event (hr/event)
CF	=	conversion factor (0.001 L/cm^3)
t*	=	time it takes to reach steady-state (hr/event)
τ	=	lag time (hr/event)
B	=	Bunge Model Constant (dimensionless)

EXAMPLE CALCULATION OF DAevent

ASSUMPTIONS:

Cgw	=	0.0048	mg/L	Chemical: Ethylbenzene
Kp	=	0.0493	cm/hr	
FA	=	1	unitless	
tevent	=	1	hr/event	
CF	=	0.001	L/cm^3	
t*	=	1.01	hr/event	
τ	=	0.42	hr/event	
B	=	0.195		

tevent < t*, therefore,

$$DAevent = (2 \times 0.0493\ cm/hr)\ (1)\ (0.0048\ mg/L)\ (0.001\ L/cm3) \times \sqrt{\frac{6 \times 0.42\ hr/event \times 1\ hr/event}{\pi}}$$

DAevent = 4.24E-07 mg/cm^2-event

RISK CALCULATIONS

ASSUMPTIONS:

A	=	6,600	cm^2
EV	=	1	event/day
ED	=	6	years
EF	=	350	days/year
BW	=	15	kg
ATc	=	25,550	days
ATnc	=	2,190	days
CSFd	=	1.1E-02	(mg/kg/day)$^{-1}$
RfDd	=	1.0E-01	(mg/kg/day)

CLIENT: NWIRP CALVERTON, CALVERTON, NEW YORK		**JOB NUMBER:** 112G02750
SUBJECT: CALCULATION OF INTAKE/RISK FROM DERMAL CONTACT WITH GROUNDWATER CHILD RESIDENTS		
BASED ON: USEPA, DECEMBER 1989, JULY 2004		
BY: R. JUPIN	**CHECKED BY:** L. Cuffari	**DATE:** 5/14/2012

EXAMPLE CARCINOGENIC CALCULATION

$$DADc = \frac{4.24E\text{-}07 \text{ mg/cm2-event} \times 1 \text{ event/day} \times 6 \text{ years} \times 350 \text{ days/year} \times 6600 \text{ cm2}}{15 \text{ kg} \times 25550 \text{ days}}$$

DADc = 1.53E-05 mg/kg/day

DADc = 1.53E-05 mg/kg/day x 1.10E-02 (mg/kg/day)-1 = Incremental Lifetime Cancer Risk

ILCR = 1.7E-07

EXAMPLE NONCARCINOGENIC CALCULATION

$$DADnc = \frac{4.24E\text{-}07 \text{ mg/cm2-event} \times 1 \text{ event/day} \times 6 \text{ years} \times 350 \text{ days/year} \times 6600 \text{ cm2}}{15 \text{ kg} \times 2190 \text{ days}}$$

DADnc = 1.79E-04 mg/kg/day

HQ = 1.79E-04 mg/kg/day / 1.00E-01 (mg/kg/day) = Hazard Quotient

HQ = 1.8E-03

CALCULATION WORKSHEET

CLIENT: NWIRP CALVERTON, CALVERTON, NEW YORK		**JOB NUMBER:** 112G02750
SUBJECT: CALCULATION OF INTAKE/RISK FROM INHALATION OF VOLATILE EMISSIONS FROM GROUNDWATER BY AN CHILD RESIDENT.		
BASED ON: USEPA 2002		
BY: R. JUPIN	**CHECKED BY:** L. Cofani	**DATE:** 5/14/2012

PURPOSE: To estimate intake, carcinogenic and noncarcinogenic risks from inhalation of volatile emissions from groundwater by an adult resident.

EQUATION:

$$EC = \frac{Ca \times ET \times EF \times ED}{AT \times 24 \text{ hours/day}}$$

$$Ca = Cw \times CF \times VF$$

Where:

EC	=	exposure concentration (mg/m3)
Ca	=	exposure point concentration in air (mg/m3)
Cw	=	chemical concentration in groundwater (ug/L)
CF	=	conversion factor (mg/ug)
VF	=	Volatilization Factor (L/m3)
ET	=	exposure time (hrs/day)
EF	=	exposure frequency (days/year)
ED	=	exposure duration (years)
AT	=	averaging time (days)
IUR	=	inhalation unit risk ($(ug/m3)^{-1}$)
RfC	=	inhalation reference concentration (mg/m3)

RISKS:

ILCR (Carcinogens) = Exposure Concentration (mg/m3) x IUR (ug/m3)-1 x 1000 ug/mg
HQ (Noncarcinogens) = Exposure Concentration (mg/m3) / RFC (mg/m3)

ASSUMPTIONS:

Cw	=	4.8	ug/l	Chemical: Ethylbenzene
Ca	=	0.0024	mg/m3	
CF	=	0.001	mg/ug	
VF	=	0.5	L/m3	
ET	=	24	hr/day	
EF	=	350	days/year	
ED	=	24	years	
ATc	=	25550	days	
ATnc	=	8760	days	
IUR	=	2.5E-06	(ug/m3)-1	
RfC	=	1.0E+00	(mg/m3)	

CLIENT: NWIRP CALVERTON, CALVERTON, NEW YORK		**JOB NUMBER:** 112G02750
SUBJECT: CALCULATION OF INTAKE/RISK FROM INHALATION OF VOLATILE EMISSIONS FROM GROUNDWATER BY AN CHILD RESIDENT.		
BASED ON: USEPA 2002		
BY: R. JUPIN	**CHECKED BY:** L. Cufari	**DATE:** 5/14/2012

EXAMPLE CARCINOGENIC CALCULATION

$$EC = \frac{2.40E\text{-}03\ mg/m3 \times 24\ hr/day \times 350\ days/year \times 24\ years}{25550\ days \times 24\ hours/day}$$

EC = 7.89E-04 mg/m3

ILCR = 7.89E-04 mg/m3 x 2.50E-06 (ug/m3)-1 x 1000 ug/m3 = Incremental Lifetime Cancer Risk

ILCR = 2.0E-06

EXAMPLE NONCARCINOGENIC CALCULATION

$$EC = \frac{2.40E\text{-}03\ mg/m3 \times 24\ hr/day \times 350\ days/year \times 24\ years}{8760\ days \times 24\ hours/day}$$

EC = 2.3E-03 mg/m3

$$HQ = \frac{2.30E\text{-}03\ mg/m3}{1.00E+00\ (mg/m3)} = \text{Hazard Quotient}$$

HQ = **2.3E-03**

CLIENT: NWIRP CALVERTON, CALVERTON, NEW YORK		**JOB NUMBER:** 112G02750
SUBJECT: ESTIMATION OF AMBIENT AIR CONCENTRATIONS IN A TRENCH RESULTING FROM VOLATILE EMISSIONS FROM GROUNDWATER.		
BASED ON: VDEQ, 2004		
BY: R. JUPIN	**CHECKED BY:** L. Ciofani	**DATE:** 5/14/2012

PURPOSE: To calculate ambient air concentrations resulting from volatilization of TCE groundwater.

Ctrench = CGW x VF

Where:

Ctrench = concentration of contaminant in the trench $\mu g/m^3$
CGW = concentration of contaminant in groundwater µg/L
VF = volatilization factor L/m^3

1. Calculate kiG (gas-phase mass transfer coefficient of component i)

$kiG = (MWH2O/MWi)^{0.335} \times (T/298)^{1.005} \times kG, H2O$

Where:

kiG = gas-phase mass transfer coefficient of component i cm/s
MW_{H2O} = molecular weight of water = 18 g/mol
MW_{TCE} = molecular weight of TCE = 131.39 g/mol
kG,H_2O = gas-phase mass transfer coefficient of water vapor at 25°C cm/s = 0.833 cm/s
T = average system absolute temperature = 298
The value of kG, H_2O is 0.833 cm/s (Superfund Exposure Assessment Manual, U. S. EPA, April 1988)

$kiG = (18/131.39)^{0.335} \times (298/298)^{1.005} \times 0.833$ cm/s = 4.28E-01 cm/s

2. Calculate kiL (liquid-phase mass transfer coefficient of component i)

$kiL = (MWO_2/MWi)^{0.5} \times (T/298) \times kL, O_2$

Where:
kiL = liquid-phase mass transfer coefficient of component i cm/s
MW_{O2} = molecular weight of O_2 = 32 g/mol
MW_{TCE} = molecular weight of TCE = 131.39 g/mol
T = average system absolute temperature = 298
kL, O_2 = liquid-phase mass transfer coefficient of oxygen at 25°C cm/s = 0.002 cm/s

$kiL = (32/131.39)^{0.5} \times (298/298) \times 0.002$ cm/s = 9.87E-04 cm/s

CLIENT: NWIRP CALVERTON, CALVERTON, NEW YORK		**JOB NUMBER:** 112G02750
SUBJECT: ESTIMATION OF AMBIENT AIR CONCENTRATIONS IN A TRENCH RESULTING FROM VOLATILE EMISSIONS FROM GROUNDWATER.		
BASED ON: VDEQ, 2004		
BY: R. JUPIN	**CHECKED BY:** L. Ciafani	**DATE:** 5/14/2012

3. Calculate Ki (overall mass transfer coefficient of contaminant)

Ki = 1 / {(1/kiL) + [(RT) / (Hi x kiG)]}

Where:

kiL = liquid-phase mass transfer coefficient of i cm/s =	9.87E-04
R = ideal gas constant atm-m^3/mole-°K =	8.20E-05
T = average system absolute temperature =	298
Hi = Henry's Law constant of TCE (atm-m^3/mol) =	9.85E-03
KiG = gas-phase mass transfer coefficient of i cm/s	4.28E-01

Ki = 1 / {(1/9.87E-4) + [(298 x 8.2E-5) / (9.85E-3 x 0.428]} = 9.81E-04 cm/s

4. Calculation of VF (Volatilization Factor)

VF = (Ki x A x F x 10^{-3} x 10^4 x 3,600) / (ACH x V)

Where:

VF = volatilization factor (L/m^3)		
Ki = overall mass transfer coefficient of contaminant =		9.81E-04 cm/s
A = area of the trench =		8.18 m^2
F = fraction of floor through which contaminant can enter (unitless) =		1
ACH = air changes per hour =		360 h^{-1}
V = volume of trench =		24.92 m^3
10^{-3} = conversion factor L/cm^3	0.001	
10^4 = conversion factor cm^2/m^2	10000	
3,600 = conversion factor seconds/hr	3600	

VF = (9.82E-4 x 8.18 x 1 x 10^{-3} x 10^4 x 3,600) / (360 x 24.92) = 3.22E-02 L/m^3

5. Calculation of C_{trench} (concentration of contaminant in the trench)

C_{trench} = C_{GW} x VF

Where:

C_{trench} = concentration of contaminant in the trench (µg/m^3)	
C_{GW} = concentration of TCE in groundwater =	1.91 µg/L
VF = volatilization factor =	3.22E-02 L/m^3

C_{trench} = 1.91 µg/L x 3.22E-02 L/m3 = **6.15E-02 µg/m^3**

CLIENT: NWIRP CALVERTON, CALVERTON, NEW YORK		**JOB NUMBER:** 112G02750
SUBJECT: CALCULATION OF INTAKE/RISK FROM INHALATION OF VOLATILES FROM GROUNDWATER - CONSTRUCTION WORKERS		
BASED ON: USEPA, DECEMBER 1989		
BY: R. JUPIN	**CHECKED BY:** L. Cuffari	**DATE:** 5/14/2012

PURPOSE: To estimate intake, carcinogenic and noncarcinogenic risks from inhalation of volatiles from groundwater.

EQUATION:

$$EC = \frac{Ca \times ET \times EF \times ED}{AT \times 24 \text{ hours/day}}$$

Where:

EC	=	exposure concentration (mg/m3)
Ca	=	exposure point concentration in air (mg/m3)
ET	=	exposure time (hrs/day)
EF	=	exposure frequency (days/year)
ED	=	exposure duration (years)
AT	=	averaging time (days)
IURi	=	inhalation unit risk ($(ug/m3)^{-1}$)
RfCi	=	inhalation reference concentration (mg/m3)

RISKS:

ILCR (Carcinogens) = Exposure Concentration (mg/m3) x IURi (ug/m3)-1 x 1000 ug/mg
HQ (Noncarcinogens) = Exposure Concentration (mg/m3) / RFCi (mg/m3)

ASSUMPTIONS:

Ca	=	6.2E-05	mg/m3	Chemical: Trichloroethene
ET	=	4	hr/day	
EF	=	30	days/year	
ED	=	1	years	
ATc	=	25,550	days	
ATnc	=	365	days	
IURi	=	4.1E-06	$(ug/m^3)^{-1}$	
RfCi	=	5.4E-01	mg/m^3	

CLIENT: NWIRP CALVERTON, CALVERTON, NEW YORK		**JOB NUMBER:** 112G02750
SUBJECT: CALCULATION OF INTAKE/RISK FROM INHALATION OF VOLATILES FROM GROUNDWATER - CONSTRUCTION WORKERS		
BASED ON: USEPA, DECEMBER 1989		
BY: R. JUPIN	**CHECKED BY:** L. Ciafani	**DATE:** 5/14/2012

EXAMPLE CARCINOGENIC CALCULATION

$$IEXc = \frac{6.15E\text{-}05 \text{ mg/m3} \times 4 \text{ hr/day} \times 30 \text{ days/year} \times 1 \text{ years}}{25550 \text{ days} \times 24 \text{ hours/day}}$$

IEXc = 1.20E-08 mg/m3

ILCR = 1.20E-08 mg/m3 x 4.10E-06 (ug/m3)-1 x 1000 ug/mg = Incremental Lifetime Cancer Risk

ILCR = 4.9E-11

EXAMPLE NONCARCINOGENIC CALCULATION

$$IEXnc = \frac{6.15E\text{-}05 \text{ mg/m3} \times 4 \text{ hr/day} \times 30 \text{ days/year} \times 1 \text{ years}}{365 \text{ days} \times 24 \text{ hours/day}}$$

IEXnc = 8.42E-07 mg/m3

HQ = 8.42E-07 mg/m3 / 5.37E-01 mg/m3 = Hazard Quotient

HQ **1.6E-06**

CLIENT: NWIRP CALVERTON, CALVERTON, NEW YORK		**JOB NUMBER:** 112G02750
SUBJECT: CALCULATION OF INTAKE/RISK FROM INCIDENTAL INGESTION OF SOIL FOR MUTAGENIC CHEMICALS - HYPOTHETICAL CHILD RESIDENTS		
BASED ON: USEPA, DECEMBER 1989, MARCH 2005		
BY: R. JUPIN	**CHECKED BY:** L. Ciofani	**DATE:** 5/14/2012

PURPOSE: To estimate intake and cancer risks for mutagenic chemicals from incidental ingestion of soil.

EQUATION:

$$IEX = \frac{CS \times IR \times EF \times ED \times FI \times CF}{BW \times AT} \times ADAF$$

Where:

IEX	=	estimated exposure intake (mg/kg/day)
Cs	=	exposure point concentration in soil (mg/kg)
IR	=	incidental ingestion rate (mg/day)
EF	=	exposure frequency (days/year)
ED	=	exposure duration (years)
FI	=	fraction ingested from contaminated source (unitless)
CF	=	conversion factor (1.0E-6 kg/mg)
BW	=	body weight (kg)
AT	=	averaging time (days)
ADAF	=	age-dependent adjustment factor
CSFo	=	oral carcinogenic slope factor ($(mg/kg/day)^{-1}$)

RISKS:

ILCR (Carcinogens) = Intake (mg/kg/day) x CSFo (mg/kg/day)-1

ASSUMPTIONS:

Cs	=	0.125	mg/kg	Chemical: Benzo(a)pyrene
IR	=	200	mg/day	
EF	=	350	days/year	
ED_1	=	2	years	
ED_2	=	4	years	
FI	=	1		
CF	=	1.0E-06	kg/mg	
BW	=	15	kg	
AT	=	25,550	days	
CSFo	=	7.3E+00	$(mg/kg/day)^{-1}$	
$ADAF_1$	=	10		
$ADAF_2$	=	3		

CLIENT: NWIRP CALVERTON, CALVERTON, NEW YORK		**JOB NUMBER:** 112G02750
SUBJECT: CALCULATION OF INTAKE/RISK FROM INCIDENTAL INGESTION OF SOIL FOR MUTAGENIC CHEMICALS - HYPOTHETICAL CHILD RESIDENTS		
BASED ON: USEPA, DECEMBER 1989, MARCH 2005		
BY: R. JUPIN	**CHECKED BY:** L. Ciafani	**DATE:** 5/14/2012

EXAMPLE CARCINOGENIC CALCULATION

$$IEX_1 = \frac{0.125 \text{ mg/kg} \times 200 \text{ mg/day} \times 350 \text{ days/year} \times 2 \text{ years} \times 1 \times 1.0\text{E-06 kg/mg}}{15 \text{ kg} \times 25550 \text{ days}} \times 10$$

IEX_1 = 4.57E-07 mg/kg/day

$$IEX_2 = \frac{0.125 \text{ mg/kg} \times 200 \text{ mg/day} \times 350 \text{ days/year} \times 4 \text{ years} \times 1 \times 1.0\text{E-06 kg/mg}}{15 \text{ kg} \times 25550 \text{ days}} \times 3$$

IEX_2 = 2.74E-07 mg/kg/day

ILCR = (4.57E-07 mg/kg/day + 2.74E-07 mg/kg/day) x 7.30E+00 (mg/kg/day)-1

ILCR = 5.3E-06

CLIENT: NWIRP CALVERTON, CALVERTON, NEW YORK		JOB NUMBER: 112G02750
SUBJECT: CALCULATION OF INTAKE/RISK FROM DERMAL CONTACT WITH SOIL FOR MUTAGENIC CHEMICALS HYPOTHETICAL CHILD RESIDENTS		
BASED ON: USEPA, JULY 2004, MARCH 2005		
BY: R. JUPIN	CHECKED BY: L. Ciofani	DATE: 5/14/2012

PURPOSE: To estimate intake and cancer risks for mutagenic chemicals from dermal contact with of soil.

EQUATION:

$$DEX = \frac{Cs \times CF \times SA \times AF \times ABS \times EF \times ED}{BW \times AT} \times ADAF$$

Where:

DEX	=	estimated exposure intake (mg/kg/day)
Cs	=	exposure point concentration in soil (mg/kg)
CF	=	conversion factor (1.0E-6 kg/mg)
SA	=	skin surface available for contact (cm^2/day)
ABS	=	absorption factor (unitless)
AF	=	adherence factor (mg/cm^2)
EF	=	exposure frequency (days/year)
ED	=	exposure duration (years)
BW	=	body weight (kg)
AT	=	averaging time (days)
ADAF	=	age-dependent adjustment factor
CSFd	=	dermal carcinogenic slope factor ($(mg/kg/day)^{-1}$)

RISKS:

ILCR (Carcinogens) = Intake (mg/kg/day) x CSFd (mg/kg/day)-1

ASSUMPTIONS:

Cs	=	0.125	mg/kg	Chemical: Benzo(a)pyrene
CF	=	1.0E-06	kg/mg	
SA	=	2,800	cm^2/day	
AF	=	0.2	mg/cm^2	
ABS	=	0.13		
EF	=	350	days/year	
ED_1	=	2	years	
ED_2	=	4	years	
BW	=	15	kg	
AT	=	25,550	days	
CSFd	=	7.3E+00	$(mg/kg/day)^{-1}$	
$ADAF_1$	=	10		
$ADAF_2$	=	3		

CLIENT: NWIRP CALVERTON, CALVERTON, NEW YORK		**JOB NUMBER:** 112G02750
SUBJECT: CALCULATION OF INTAKE/RISK FROM DERMAL CONTACT WITH SOIL FOR MUTAGENIC CHEMICALS HYPOTHETICAL CHILD RESIDENTS		
BASED ON: USEPA, JULY 2004, MARCH 2005		
BY: R. JUPIN	**CHECKED BY:** L. Cifani	**DATE:** 5/14/2012

EXAMPLE CARCINOGENIC CALCULATION

$$DEXc = \frac{0.125\ mg/kg \times 1.0E\text{-}06\ kg/mg \times 2800\ cm2/day \times 0.2\ mg/cm2 \times 0.13 \times 350\ days/year \times 2\ years}{15\ kg \times 25550\ days} \times 10$$

DEXc = 1.66E-07 mg/kg/day

$$DEXc = \frac{0.125\ mg/kg \times 1.0E\text{-}06\ kg/mg \times 2800\ cm2/day \times 0.2\ mg/cm2 \times 0.13 \times 350\ days/year \times 4\ years}{15\ kg \times 25550\ days} \times 3$$

DEXc = 9.97E-08 mg/kg/day

ILCR = (1.66E-07 mg/kg/day + 9.97E-08 mg/kg/day) x 7.30E+00 (mg/kg/day)-1

ILCR = 1.9E-06

CALCULATION WORKSHEET

CLIENT: NWIRP CALVERTON, CALVERTON, NEW YORK		**JOB NUMBER:** 112G02750
SUBJECT: CALCULATION OF INTAKE/RISK FROM INHALATION OF FUGATIVE DUST EMISSIONS FOR MUTAGENIC CHEMICALS - HYPOTHETICAL CHILD RESIDENTS		
BASED ON: USEPA, DECEMBER 1989, MARCH 2005		
BY: R. JUPIN	**CHECKED BY:** L. Ciofani	**DATE:** 5/14/2012

PURPOSE: To estimate intake, carcinogenic risks for mutagenic chemicals from inhalation of of soil.

EQUATION:

$$EC = \frac{Ca \times ET \times EF \times ED}{AT \times 24\ hours/day} \times ADAF$$

Where:

EC	=	estimated exposure concentration (mg/m3)
Ca	=	exposure point concentration in air (mg/m3)
	=	Cs x 1/PEF
Cs	=	exposure point concentration in soil (mg/kg)
PEF	=	particulate emission factor (m3/kg)
ET	=	exposure time (hrs/day)
EF	=	exposure frequency (days/year)
ED	=	exposure duration (years)
AT	=	averaging time (hours)
ADAF	=	age-dependent adjustment factor
IUR	=	inhalation unit risk($(ug/mg)^{-1}$)

RISKS:

ILCR = Exposure concentration (mg/m3) x IURi (ug/m3)-1 x 1000 ug/mg

ASSUMPTIONS:

Cs	=	0.125	mg/kg	Chemical: Benzo(a)pyrene
PEF	=	1.21E+09	m3/kg	
Ca	=	1.03E-10	mg/m3	
ET	=	24	hr/day	
EF	=	350	days/year	
ED_1	=	2	years	
ED_2	=	4	years	
ATc	=	25,550	days	
IUR	=	1.1E-03	$(ug/m3)^{-1}$	
$ADAF_1$	=	10		
$ADAF_2$	=	3		

CLIENT: NWIRP CALVERTON, CALVERTON, NEW YORK		**JOB NUMBER:** 112G02750
SUBJECT: CALCULATION OF INTAKE/RISK FROM INHALATION OF FUGATIVE DUST EMISSIONS FOR MUTAGENIC CHEMICALS - HYPOTHETICAL CHILD RESIDENTS		
BASED ON: USEPA, DECEMBER 1989, MARCH 2005		
BY: R. JUPIN	**CHECKED BY:** L. Cifani	**DATE:** 5/14/2012

EXAMPLE CARCINOGENIC CALCULATION

$$EC = \frac{1.03E\text{-}10\ mg/m3 \times 24\ hr/day \times 350\ days/year \times 2\ years}{25550\ days \times 24\ hours/day} \times 10$$

EC = 2.83E-11 mg/m3

$$EC = \frac{1.03E\text{-}10\ mg/m3 \times 24\ hr/day \times 350\ days/year \times 4\ years}{25550\ days \times 24\ hours/day} \times 3$$

EC = 1.70E-11 mg/m3

ILCR = (2.83E-11 mg/m3 + 1.70E-11 mg/m3) x 1.10E-03 (ug/m3)-1 x 1000 ug/mg

ILCR = 5.0E-11

CLIENT: NWIRP CALVERTON, CALVERTON, NEW YORK		**JOB NUMBER:** 112G02750
SUBJECT: CALCULATION OF INTAKE/RISK FROM INCIDENTAL INGESTION OF SOIL FOR MUTAGENIC CHEMICALS - HYPOTHETICAL ADULT RESIDENTS		
BASED ON: USEPA, DECEMBER 1989, MARCH 2005		
BY: R. JUPIN	**CHECKED BY:** L. Cifani	**DATE:** 5/14/2012

PURPOSE: To estimate intake and cancer risks for mutagenic chemicals from incidental ingestion of soil.

EQUATION:

$$IEX = \frac{CS \times IR \times EF \times ED \times FI \times CF}{BW \times AT} \times ADAF$$

Where:

IEX	=	estimated exposure intake (mg/kg/day)
Cs	=	exposure point concentration in soil (mg/kg)
IR	=	incidental ingestion rate (mg/day)
EF	=	exposure frequency (days/year)
ED	=	exposure duration (years)
FI	=	fraction ingested from contaminated source (unitless)
CF	=	conversion factor (1.0E-6 kg/mg)
BW	=	body weight (kg)
AT	=	averaging time (days)
ADAF	=	age-dependent adjustment factor
CSFo	=	oral carcinogenic slope factor ($(mg/kg/day)^{-1}$)

RISKS:

ILCR (Carcinogens) = Intake (mg/kg/day) x CSFo (mg/kg/day)-1

ASSUMPTIONS:

Cs	=	0.125	mg/kg	Chemical: Benzo(a)pyrene
IR	=	100	mg/day	
EF	=	350	days/year	
ED_1	=	10	years	
ED_2	=	14	years	
FI	=	1		
CF	=	1.0E-06	kg/mg	
BW	=	70	kg	
AT	=	25,550	days	
CSFo	=	7.3E+00	$(mg/kg/day)^{-1}$	
$ADAF_1$	=	3		
$ADAF_2$	=	1		

CLIENT: NWIRP CALVERTON, CALVERTON, NEW YORK		**JOB NUMBER:** 112G02750
SUBJECT: CALCULATION OF INTAKE/RISK FROM INCIDENTAL INGESTION OF SOIL FOR MUTAGENIC CHEMICALS - HYPOTHETICAL ADULT RESIDENTS		
BASED ON: USEPA, DECEMBER 1989, MARCH 2005		
BY: R. JUPIN	**CHECKED BY:** L. Ciofani	**DATE:** 5/14/2012

EXAMPLE CARCINOGENIC CALCULATION

$$IEX_1 = \frac{0.125 \text{ mg/kg} \times 100 \text{ mg/day} \times 350 \text{ days/year} \times 10 \text{ years} \times 1 \times 1.0\text{E-06 kg/mg}}{70 \text{ kg} \times 25550 \text{ days}} \times 3$$

IEX_1 = 7.34E-08 mg/kg/day

$$IEX_2 = \frac{0.125 \text{ mg/kg} \times 100 \text{ mg/day} \times 350 \text{ days/year} \times 14 \text{ years} \times 1 \times 1.0\text{E-06 kg/mg}}{70 \text{ kg} \times 25550 \text{ days}} \times 1$$

IEX_2 = 3.42E-08 mg/kg/day

ILCR = (7.34E-08 mg/kg/day + 3.42E-08 mg/kg/day) x 7.30E+00 (mg/kg/day)-1

ILCR = 7.9E-07

CLIENT: NWIRP CALVERTON, CALVERTON, NEW YORK		JOB NUMBER: 112G02750
SUBJECT: CALCULATION OF INTAKE/RISK FROM DERMAL CONTACT WITH SOIL FOR MUTAGENIC CHEMICALS HYPOTHETICAL ADULT RESIDENTS		
BASED ON: USEPA, JULY 2004, MARCH 2005		
BY: R. JUPIN	CHECKED BY: L. Ciafani	DATE: 5/14/2012

PURPOSE: To estimate intake and cancer risks for mutagenic chemicals from dermal contact with of soil.

EQUATION:

$$DEX = \frac{Cs \times CF \times SA \times AF \times ABS \times EF \times ED}{BW \times AT} \times ADAF$$

Where:

DEX	=	estimated exposure intake (mg/kg/day)
Cs	=	exposure point concentration in soil (mg/kg)
CF	=	conversion factor (1.0E-6 kg/mg)
SA	=	skin surface available for contact (cm^2/day)
ABS	=	absorption factor (unitless)
AF	=	adherence factor (mg/cm^2)
EF	=	exposure frequency (days/year)
ED	=	exposure duration (years)
BW	=	body weight (kg)
AT	=	averaging time (days)
ADAF	=	age-dependent adjustment factor
CSFd	=	dermal carcinogenic slope factor ($(mg/kg/day)^{-1}$)

RISKS:

ILCR (Carcinogens) = Intake (mg/kg/day) x CSFd (mg/kg/day)-1

ASSUMPTIONS:

Cs	=	0.125	mg/kg	Chemical: Benzo(a)pyrene
CF	=	1.0E-06	kg/mg	
SA	=	5,700	cm^2/day	
AF	=	0.07	mg/cm^2	
ABS	=	0.13		
EF	=	350	days/year	
ED_1	=	10	years	
ED_2	=	14	years	
BW	=	70	kg	
AT	=	25,550	days	
CSFd	=	7.3E+00	$(mg/kg/day)^{-1}$	
$ADAF_1$	=	3		
$ADAF_2$	=	1		

CLIENT: NWIRP CALVERTON, CALVERTON, NEW YORK		**JOB NUMBER:** 112G02750
SUBJECT: CALCULATION OF INTAKE/RISK FROM DERMAL CONTACT WITH SOIL FOR MUTAGENIC CHEMICALS HYPOTHETICAL ADULT RESIDENTS		
BASED ON: USEPA, JULY 2004, MARCH 2005		
BY: R. JUPIN	**CHECKED BY:** L. Ciafani	**DATE:** 5/14/2012

EXAMPLE CARCINOGENIC CALCULATION

$$DEXc = \frac{0.125 \text{ mg/kg} \times 1.0E\text{-}06 \text{ kg/mg} \times 5700 \text{ cm2/day} \times 0.07 \text{ mg/cm2} \times 0.13 \times 350 \text{ days/year} \times 10 \text{ years}}{70 \text{ kg} \times 25550 \text{ days}} \times 3$$

DEXc = 3.81E-08 mg/kg/day

$$DEXc = \frac{0.125 \text{ mg/kg} \times 1.0E\text{-}06 \text{ kg/mg} \times 5700 \text{ cm2/day} \times 0.07 \text{ mg/cm2} \times 0.13 \times 350 \text{ days/year} \times 14 \text{ years}}{70 \text{ kg} \times 25550 \text{ days}} \times 1$$

DEXc = 1.78E-08 mg/kg/day

ILCR = (3.81E-08 mg/kg/day + 1.78E-08 mg/kg/day) x 7.30E+00 (mg/kg/day)-1

ILCR = 4.1E-07

CALCULATION WORKSHEET

CLIENT: NWIRP CALVERTON, CALVERTON, NEW YORK		**JOB NUMBER:** 112G02750
SUBJECT: CALCULATION OF INTAKE/RISK FROM INHALATION OF FUGATIVE DUST EMISSIONS FOR MUTAGENIC CHEMICALS - HYPOTHETICAL ADULT RESIDENTS		
BASED ON: USEPA, DECEMBER 1989, MARCH 2005		
BY: R. JUPIN	**CHECKED BY:** L. Ciofani	**DATE:** 5/14/2012

PURPOSE: To estimate intake, carcinogenic risks for mutagenic chemicals from inhalation of of soil.

EQUATION:

$$EC = \frac{Ca \times ET \times EF \times ED}{AT \times 24\ hours/day} \times ADAF$$

Where:

EC	=	estimated exposure intake (mg/kg/day)
Ca	=	exposure point concentration in air (mg/m3)
	=	Cs x 1/PEF
Cs	=	exposure point concentration in soil (mg/kg)
PEF	=	particulate emission factor (m3/kg)
ET	=	exposure time (hrs/day)
EF	=	exposure frequency (days/year)
ED	=	exposure duration (years)
BW	=	body weight (kg)
AT	=	averaging time (hours)
ADAF	=	age-dependent adjustment factor
IURi	=	inhalation unit risk($(ug/mg)^{-1}$)

RISKS:

ILCR = Exposure concentration (mg/m3) x IUR (ug/m3)-1 x 1000 ug/mg

ASSUMPTIONS:

Cs	=	0.125	mg/kg	Chemical: Benzo(a)pyrene
PEF	=	1.21E+09	m3/kg	
Ca	=	1.03E-10	mg/m3	
ET	=	24	hr/day	
EF	=	350	days/year	
ED_1	=	10	years	
ED_2	=	14	years	
ATc	=	25,550	days	
IUR	=	1.1E-03	$(ug/m3)^{-1}$	
$ADAF_1$	=	3		
$ADAF_2$	=	1		

CLIENT: NWIRP CALVERTON, CALVERTON, NEW YORK		**JOB NUMBER:** 112G02750
SUBJECT: CALCULATION OF INTAKE/RISK FROM INHALATION OF FUGATIVE DUST EMISSIONS FOR MUTAGENIC CHEMICALS - HYPOTHETICAL ADULT RESIDENTS		
BASED ON: USEPA, DECEMBER 1989, MARCH 2005		
BY: R. JUPIN	**CHECKED BY:** L. Cifani	**DATE:** 5/14/2012

EXAMPLE CARCINOGENIC CALCULATION

$$EC = \frac{1.03E\text{-}10\ mg/m3 \times 24\ hr/day \times 350\ days/year \times 10\ years}{25550\ days \times 24\ hours/day} \times 3$$

EC = 4.25E-11 mg/m3

$$EC = \frac{1.03E\text{-}10\ mg/m3 \times 24\ hr/day \times 350\ days/year \times 14\ years}{25550\ days \times 24\ hours/day} \times 1$$

EC = 1.98E-11 mg/m3

ILCR = (4.25E-11 mg/m3 + 1.98E-11 mg/m3) x 1.10E-03 (ug/m3)-1 x 1000 ug/mg

ILCR = 6.8E-11

CALCULATION WORKSHEET

CLIENT: NWIRP CALVERTON, CALVERTON, NEW YORK		**JOB NUMBER:** 112G02750
SUBJECT: MUTAGENIC CALCULATION OF INTAKE/RISK FROM INGESTION OF GROUNDWATER FOR VINYL CHLORIDE CHILD RESIDENTS		
BASED ON: USEPA, DECEMBER 1989		
BY: R. JUPIN	**CHECKED BY:** L. Cifgam	**DATE:** 5/14/2012

PURPOSE: To estimate intake and carcinogenic risk for vinyl chloride from ingestion of groundwater.

EQUATION:

$$IEX = \frac{Cgw \times CF \times IR \times EF \times ED}{BW \times AT} + \frac{Cgw \times IR \times CF}{BW}$$

Where:

IEX	=	estimated exposure intake (mg/kg/day)
Cgw	=	exposure point concentration in groundwater (ug/L)
CF	=	conversion factor (1.0E-3 mg/ug)
IR	=	ingestion rate (L/day)
EF	=	exposure frequency (days/year)
ED	=	exposure duration (years)
BW	=	body weight (kg)
AT	=	averaging time (days)
CSFo	=	oral carcinogenic slope factor ($(mg/kg/day)^{-1}$)

RISKS:

ILCR (Carcinogens) = Intake (mg/kg/day) x CSFo (mg/kg/day)-1

CALCULATION WORKSHEET

CLIENT: NWIRP CALVERTON, CALVERTON, NEW YORK		**JOB NUMBER:** 112G02750
SUBJECT: MUTAGENIC CALCULATION OF INTAKE/RISK FROM INGESTION OF GROUNDWATER FOR VINYL CHLORIDE CHILD RESIDENTS		
BASED ON: USEPA, DECEMBER 1989		
BY: R. JUPIN	**CHECKED BY:** L. Ciofani	**DATE:** 5/14/2012

ASSUMPTIONS:

Cgw	=	1.8	ug/L
IR	=	1	L/day
CF	=	1.0E-03	mg/ug
EF	=	350	days/year
ED	=	6	years
BW	=	15	kg
ATc	=	25,550	days
ATnc	=	2,190	days
CSFo	=	7.2E-01	$(mg/kg/day)^{-1}$

EXAMPLE CARCINOGENIC CALCULATION

$$IEXc = \frac{1.8\ ug/L \times 0.001\ mg/ug \times 1\ L/day \times 350\ days/year \times 6\ years}{15\ kg \times 25550\ days} + \frac{1.8\ ug/L \times 1\ L/day \times 0.001\ mg/ug}{15\ kg}$$

IEXc = 1.30E-04 mg/kg/day

ILCR = 1.30E-04 mg/kg/day x 7.20E-01 (mg/kg/day)-1 = Incremental Lifetime Cancer Risk

ILCR = 9.4E-05

CALCULATION WORKSHEET

CLIENT: NWIRP CALVERTON, CALVERTON, NEW YORK		**JOB NUMBER:** 112G02750
SUBJECT: MUTAGENIC CALCULATION OF INTAKE/RISK FROM DERMAL CONTACT WITH GROUNDWATER FOR VINYL CHLORIDE CHILD RESIDENTS		
BASED ON: USEPA, JULY 2004, MARCH 2005.		
BY: R. JUPIN	**CHECKED BY:** L. Ciofani	**DATE:** 5/14/2012

PURPOSE: To estimate intake and carcinogenic risk for vinyl chloride from dermal contact with groundwater.

EQUATION:

$$DAD = \frac{DAevent \times EV \times ED \times EF \times SA}{BW \times AT} + \frac{DAevent \times SA \times EV}{BW}$$

Where:

DAD	=	dermally absorbed dose (mg/kg/day)
DAevent	=	absorbed dose per event (mg/cm^2/event)
EV	=	event frequency (events/day)
EF	=	exposure frequency (days/year)
ED	=	exposure duration (years)
SA	=	skin surface available for contact (cm^2)
BW	=	body weight (kg)
AT	=	averaging time (days)
CSFd	=	dermal carcinogenic slope factor ((mg/kg/day)$^{-1}$)

RISKS:

ILCR (Carcinogens) = DAD (mg/kg/day) x CSFd (mg/kg/day)-1

CLIENT: NWIRP CALVERTON, CALVERTON, NEW YORK		**JOB NUMBER:** 112G02750
SUBJECT: MUTAGENIC CALCULATION OF INTAKE/RISK FROM DERMAL CONTACT WITH GROUNDWATER FOR VINYL CHLORIDE CHILD RESIDENTS		
BASED ON: USEPA, JULY 2004, MARCH 2005.		
BY: R. JUPIN	**CHECKED BY:** L. Cifani	**DATE:** 5/14/2012

EQUATIONS for DAevent:

For Inorganics:

DAevent = Kp x Cw x CF x tevent

For Organics:

$$\text{If tevent} \le t^*\text{, then: DAevent} = 2 \times FA \times Kp \times Cw \times CF \times \sqrt{\frac{6 \times \text{tau} \times \text{tevent}}{\pi}}$$

$$\text{If tevent} > t^*\text{, then: DAevent} = FA \times Kp \times Cw \times CF \times \left[\frac{\text{tevent}}{1+B} + 2 \times \text{tau} \times \left(\frac{1+3B+3B^2}{(1+B)^2}\right)\right]$$

Where:

Kp	=	permeability coefficient from water (cm/hr)
FA	=	fraction absorbed water (dimensionless)
Cgw	=	concentration of chemical in groundwater (mg/L)
tevent	=	duration of event (hr/event)
CF	=	conversion factor (0.001 L/cm^3)
t*	=	time it takes to reach steady-state (hr/event)
τ	=	lag time (hr/event)
B	=	Bunge Model Constant (dimensionless)

CLIENT: NWIRP CALVERTON, CALVERTON, NEW YORK		JOB NUMBER: 112G02750
SUBJECT: MUTAGENIC CALCULATION OF INTAKE/RISK FROM DERMAL CONTACT WITH GROUNDWATER FOR VINYL CHLORIDE CHILD RESIDENTS		
BASED ON: USEPA, JULY 2004, MARCH 2005.		
BY: R. JUPIN	CHECKED BY: L. Ciofani	DATE: 5/14/2012

EXAMPLE CALCULATION OF DAevent

ASSUMPTIONS:

Cgw	=	0.0018	mg/L
Kp	=	5.60E-03	cm/hr
FA	=	1	unitless
tevent	=	1	hr/event
CF	=	0.001	L/cm^3
t*	=	0.54	hr/event
τ	=	0.24	hr/event
B	=	0.017	

tevent > t*, therefore,

$$DAevent = (1 \times 0.0056\ cm/hr)\ (0.0018\ mg/L)\ (0.001\ L/cm3) \times \left[\frac{1\ hr/event}{1 + 0.017} + 2 \times 0.239\ hr/event \times \frac{(1 + 3 \times 0.017 + 3 \times 0.017 \times 0.017)}{(1 + 0.017)^2}\right]$$

DAevent = 1.48E-08 mg/cm^2-event

RISK CALCULATIONS

ASSUMPTIONS:

SA	=	6,600	cm^2
EV	=	1	event/day
ED	=	6	years
EF	=	350	days/year
BW	=	15	kg
ATc	=	25,550	days
CSFd	=	7.2E-01	$(mg/kg/day)^{-1}$

CLIENT: NWIRP CALVERTON, CALVERTON, NEW YORK		**JOB NUMBER:** 112G02750
SUBJECT: MUTAGENIC CALCULATION OF INTAKE/RISK FROM DERMAL CONTACT WITH GROUNDWATER FOR VINYL CHLORIDE CHILD RESIDENTS		
BASED ON: USEPA, JULY 2004, MARCH 2005.		
BY: R. JUPIN	**CHECKED BY:** L. Cifani	**DATE:** 5/14/2012

EXAMPLE CARCINOGENIC CALCULATION

$$DADc = \frac{1.48E\text{-}08 \text{ mg/cm2-event} \times 1 \text{ event/day} \times 6 \text{ years} \times 350 \text{ days/year} \times 6600 \text{ cm2}}{15 \text{ kg} \times 25550 \text{ days}} + \frac{1.48E\text{-}08 \text{ mg/cm2-event} \times 6600 \text{ cm2} \times 1 \text{ event/day}}{15 \text{ kg}}$$

DADc = 7.05E-06 mg/kg/day

DADc = 7.05E-06 mg/kg/day x 7.20E-01 (mg/kg/day)-1 = Incremental Lifetime Cancer Risk

ILCR = 5.1E-06

CALCULATION WORKSHEET

CLIENT: NWIRP CALVERTON, CALVERTON, NEW YORK		**JOB NUMBER:** 112G02750
SUBJECT: MUTAGENIC CALCULATION OF INTAKE/RISK FROM INHALATION OF VINYL CHLORIDE CHILD RESIDENT.		
BASED ON: USEPA MARCH 2005, JANUARY 2009		
BY: R. JUPIN	**CHECKED BY:** L. Ciofani	**DATE:** 5/14/2012

PURPOSE: To estimate intake and carcinogenic risk for vinyl chloride from inhalation.

EQUATION:

$$EC = \frac{Ca \times ET \times EF \times ED}{AT \times 24 \text{ hours/day}} + Ca$$

$$Ca = Cw \times VF$$

Where:

EC	=	exposure concentration (mg/m3)
Ca	=	exposure point concentration in air (mg/m3)
	=	Cw x VF
Cw	=	chemical concentration in groundwater (ug/L)
VF	=	Volatilization Factor (L/m3)
ET	=	exposure time (hrs/day)
EF	=	exposure frequency (days/year)
ED	=	exposure duration (years)
AT	=	averaging time (days)
IURi	=	inhalation unit risk ($(ug/m3)^{-1}$)

RISKS:

ILCR (Carcinogens) = Exposure Concentration (mg/m3) x IURi (ug/m3)-1 x 1000 ug/mg

CALCULATION WORKSHEET

CLIENT: NWIRP CALVERTON, CALVERTON, NEW YORK		**JOB NUMBER:** 112G02750
SUBJECT: MUTAGENIC CALCULATION OF INTAKE/RISK FROM INHALATION OF VINYL CHLORIDE CHILD RESIDENT.		
BASED ON: USEPA MARCH 2005, JANUARY 2009		
BY: R. JUPIN	**CHECKED BY:** L. Cifoni	**DATE:** 5/14/2012

ASSUMPTIONS:

Cw	=	1.8	ug/L
VF	=	0.5	L/m3
Ca	=	9.0E-04	mg/m3
ET	=	24	hr/day
EF	=	350	days/year
ED	=	6	years
ATc	=	25550	days
IURi	=	4.4E-06	$(ug/m^3)^{-1}$

EXAMPLE CARCINOGENIC CALCULATION

$$EC = \frac{9.00E\text{-}04\ mg/m3 \times 24\ hr/day \times 350\ days/year \times 6\ years}{25550\ days \times 24\ hours/day} + 9.0E\text{-}04$$

EC = 9.74E-04 mg/m3

ILCR = 9.74E-04 mg/m3 x 4.40E-06 (ug/m3)-1 x 1000 ug/mg = Incremental Lifetime Cancer Risk

ILCR = 4.3E-06

APPENDIX H.5

RAGS PART D TABLES FOR CHEMICALS PRESENT AT NATURALLY OCCURRING LEVELS

RAGS Part D Table 7

Calculation of Cancer Risks and Non-Cancer Hazards

LIST OF TABLES
RAGS PART D TABLE 7
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

Table No.

Reasonable Maximum Exposures

7.1.RME Construction Workers
7.2.RME Industrial Workers
7.3.RME Child Recreational Users
7.4.RME Adult Recreational Users
7.5.RME Child Residents
7.6.RME Adult Residents

Central Tendency Exposures

7.1.CTE Construction Workers
7.2.CTE Industrial Workers
7.3.CTE Child Recreational Users
7.4.CTE Adult Recreational Users
7.5.CTE Child Residents
7.6.CTE Adult Residents

TABLE 7.1.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURES
NWIRP CALVERTON, CALVERTON, NEW YORK

Scenario Timeframe: Future
Receptor Population: Construction Workers
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Surface/Subsurface Soil	Surface/Subsurface Soil	Site 2	Ingestion	Arsenic	1.25	mg/kg	5.8E-08	(mg/kg/day)	1.5E+00	$(mg/kg/day)^{-1}$	8.6E-08	4.0E-06	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.01
			Exp. Route Total								8.6E-08					0.01
			Dermal	Arsenic	1.25	mg/kg	5.2E-09	(mg/kg/day)	1.5E+00	$(mg/kg/day)^{-1}$	7.8E-09	3.6E-07	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.001
			Exp. Route Total								7.8E-09					0.001
		Exposure Point Total									9.4E-08					0.01
	Exposure Medium Total										9.4E-08					0.01
	Air	Site 2	Inhalation	Arsenic	8.9E-7	mg/m^3	2.9E-09	(mg/m^3)	4.3E-03	$(ug/m^3)^{-1}$	1.3E-08	2.0E-07	(mg/m^3)	1.5E-05	(mg/m^3)	0.01
			Exp. Route Total								1.3E-08					0.01
		Exposure Point Total									1.3E-08					0.01
	Exposure Medium Total										1.3E-08					0.01
Medium Total											1.1E-07					0.03
										Total of Receptor Risks Across All Media	1.1E-07				Total of Receptor Hazards Across All Media	0.03

TABLE 7.2.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURES
NWIRP CALVERTON, CALVERTON, NEW YORK

Scenario Timeframe: Future
Receptor Population: Industrial Workers
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Surface/Subsurface Soil	Surface/Subsurface Soil	Site 2	Ingestion	Arsenic	1.25	mg/kg	4.4E-07	(mg/kg/day)	1.5E+00	$(mg/kg/day)^{-1}$	6.6E-07	1.2E-06	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.004
			Exp. Route Total								6.6E-07					0.004
			Dermal	Arsenic	1.25	mg/kg	8.6E-08	(mg/kg/day)	1.5E+00	$(mg/kg/day)^{-1}$	1.3E-07	2.4E-07	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.0008
			Exp. Route Total								1.3E-07					0.0008
		Exposure Point Total									7.8E-07					0.005
	Exposure Medium Total										7.8E-07					0.005
	Air	Site 2	Inhalation	Arsenic	1.0E-9	mg/m^3	8.4E-11	(mg/m^3)	4.3E-03	$(ug/m^3)^{-1}$	3.6E-10	2.4E-10	(mg/m^3)	1.5E-05	(mg/m^3)	0.00002
			Exp. Route Total								3.6E-10					0.00002
		Exposure Point Total									3.6E-10					0.00002
	Exposure Medium Total										3.6E-10					0.00002
Medium Total											7.9E-07					0.005
										Total of Receptor Risks Across All Media	7.9E-07				Total of Receptor Hazards Across All Media	0.005

TABLE 7.3.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURES
NWIRP CALVERTON, CALVERTON, NEW YORK

Scenario Timeframe: Future
Receptor Population: Recreational Users
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Surface/Subsurface Soil	Surface/Subsurface Soil	Site 2	Ingestion	Arsenic	1.25	mg/kg	1.0E-07	(mg/kg/day)	1.5E+00	$(mg/kg/day)^{-1}$	1.5E-07	1.2E-06	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.004
			Exp. Route Total								1.5E-07					0.004
			Dermal	Arsenic	1.25	mg/kg	1.7E-08	(mg/kg/day)	1.5E+00	$(mg/kg/day)^{-1}$	2.6E-08	2.0E-07	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.0007
			Exp. Route Total								2.6E-08					0.0007
		Exposure Point Total									1.8E-07					0.005
	Exposure Medium Total										1.8E-07					0.005
	Air	Site 2	Inhalation	Arsenic	1.0E-9	mg/m^3	2.1E-12	(mg/m^3)	4.3E-03	$(ug/m^3)^{-1}$	9.0E-12	2.5E-11	(mg/m^3)	1.5E-05	(mg/m^3)	0.000002
			Exp. Route Total								9.0E-12					0.000002
		Exposure Point Total									9.0E-12					0.000002
	Exposure Medium Total										9.0E-12					0.000002
Medium Total											1.8E-07					0.005
										Total of Receptor Risks Across All Media	1.8E-07				Total of Receptor Hazards Across All Media	0.005

TABLE 7.4.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURES
NWIRP CALVERTON, CALVERTON, NEW YORK

Scenario Timeframe: Future
Receptor Population: Recreational Users
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Surface/Subsurface Soil	Surface/Subsurface Soil	Site 2	Ingestion	Arsenic	1.25	mg/kg	4.4E-08	(mg/kg/day)	1.5E+00	$(mg/kg/day)^{-1}$	6.5E-08	1.3E-07	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.0004
			Exp. Route Total								6.5E-08					0.0004
			Dermal	Arsenic	1.25	mg/kg	1.0E-08	(mg/kg/day)	1.5E+00	$(mg/kg/day)^{-1}$	1.6E-08	3.0E-08	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.0001
			Exp. Route Total								1.6E-08					0.0001
		Exposure Point Total									8.1E-08					0.0005
	Exposure Medium Total										8.1E-08					0.0005
	Air	Site 2	Inhalation	Arsenic	1.0E-9	mg/m^3	8.4E-12	(mg/m^3)	4.3E-03	$(ug/m^3)^{-1}$	3.6E-11	2.5E-11	(mg/m^3)	1.5E-05	(mg/m^3)	0.000002
			Exp. Route Total								3.6E-11					0.000002
		Exposure Point Total									3.6E-11					0.000002
	Exposure Medium Total										3.6E-11					0.000002
Medium Total											8.1E-08					0.0005
										Total of Receptor Risks Across All Media	8.1E-08				Total of Receptor Hazards Across All Media	0.0005

TABLE 7.5 RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURES
NWIRP CALVERTON, CALVERTON, NEW YORK

Scenario Timeframe: Hypothetical
Receptor Population: Residents
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Surface/Subsurface Soil	Surface/Subsurface Soil	Site 2	Ingestion	Arsenic	1.25	mg/kg	1.4E-06	(mg/kg/day)	1.5E+00	$(mg/kg/day)^{-1}$	2.1E-06	1.6E-05	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.05
			Exp. Route Total								2.1E-06					0.05
			Dermal	Arsenic	1.25	mg/kg	1.2E-07	(mg/kg/day)	1.5E+00	$(mg/kg/day)^{-1}$	1.7E-07	1.3E-06	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.004
			Exp. Route Total								1.7E-07					0.004
		Exposure Point Total									2.2E-06					0.06
	Exposure Medium Total										2.2E-06					0.06
	Air	Site 2	Inhalation	Arsenic	1.0E-9	mg/m^3	8.5E-11	(mg/m^3)	4.3E-03	$(ug/m^3)^{-1}$	3.7E-10	9.9E-10	(mg/m^3)	1.5E-05	(mg/m^3)	0.00007
			Exp. Route Total								3.7E-10					0.00007
		Exposure Point Total									3.7E-10					0.00007
	Exposure Medium Total										3.7E-10					0.00007
Medium Total											2.2E-06					0.06
										Total of Receptor Risks Across All Media	2.2E-06				Total of Receptor Hazards Across All Media	0.06

TABLE 7.6.RME
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURES
NWIRP CALVERTON, CALVERTON, NEW YORK

Scenario Timeframe: Hypothetical
Receptor Population: Residents
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Surface/Subsurface Soil	Surface/Subsurface Soil	Site 2	Ingestion	Arsenic	1.25	mg/kg	5.9E-07	(mg/kg/day)	1.5E+00	$(mg/kg/day)^{-1}$	8.8E-07	1.7E-06	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.006
			Exp. Route Total								8.8E-07					0.006
			Dermal	Arsenic	1.25	mg/kg	7.0E-08	(mg/kg/day)	1.5E+00	$(mg/kg/day)^{-1}$	1.1E-07	2.0E-07	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.0007
			Exp. Route Total								1.1E-07					0.0007
		Exposure Point Total									9.9E-07					0.006
	Exposure Medium Total										9.9E-07					0.006
	Air	Site 2	Inhalation	Arsenic	1.0E-9	mg/m^3	3.4E-10	(mg/m^3)	4.3E-03	$(ug/m^3)^{-1}$	1.5E-09	9.9E-10	(mg/m^3)	1.5E-05	(mg/m^3)	0.00007
			Exp. Route Total								1.5E-09					0.00007
		Exposure Point Total									1.5E-09					0.00007
	Exposure Medium Total										1.5E-09					0.00007
Medium Total											9.9E-07					0.006
										Total of Receptor Risks Across All Media	9.9E-07				Total of Receptor Hazards Across All Media	0.006

TABLE 7.1.CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURES
NWIRP CALVERTON, CALVERTON, NEW YORK

Scenario Timeframe: Future
Receptor Population: Construction Workers
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Surface/Subsurface Soil	Surface/Subsurface Soil	Site 2	Ingestion	Arsenic	1.25	mg/kg	1.4E-08	(mg/kg/day)	1.5E+00	$(mg/kg/day)^{-1}$	2.2E-08	1.0E-06	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.003
			Exp. Route Total								2.2E-08					0.003
			Dermal	Arsenic	1.25	mg/kg	8.6E-10	(mg/kg/day)	1.5E+00	$(mg/kg/day)^{-1}$	1.3E-09	6.1E-08	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.0002
			Exp. Route Total								1.3E-09					0.0002
		Exposure Point Total									2.3E-08					0.004
	Exposure Medium Total										2.3E-08					0.004
	Air	Site 2	Inhalation	Arsenic	0.000	mg/m^3	1.5E-09	(mg/m^3)	4.3E-03	$(ug/m^3)^{-1}$	6.3E-09	1.0E-07	(mg/m^3)	1.5E-05	(mg/m^3)	0.007
			Exp. Route Total								6.3E-09					0.007
		Exposure Point Total									6.3E-09					0.007
	Exposure Medium Total										6.3E-09					0.007
Medium Total											2.9E-08					0.01
										Total of Receptor Risks Across All Media	2.9E-08				Total of Receptor Hazards Across All Media	0.01

TABLE 7.2.CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURES
NWIRP CALVERTON, CALVERTON, NEW YORK

Scenario Timeframe: Future
Receptor Population: Industrial Workers
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Surface/Subsurface Soil	Surface/Subsurface Soil	Site 2	Ingestion	Arsenic	1.25	mg/kg	6.9E-08	(mg/kg/day)	1.5E+00	$(mg/kg/day)^{-1}$	1.0E-07	5.4E-07	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.002
			Exp. Route Total								1.0E-07					0.002
			Dermal	Arsenic	1.25	mg/kg	2.7E-09	(mg/kg/day)	1.5E+00	$(mg/kg/day)^{-1}$	4.1E-09	2.1E-08	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.00007
			Exp. Route Total								4.1E-09					0.00007
		Exposure Point Total									1.1E-07					0.002
	Exposure Medium Total										1.1E-07					0.002
	Air	Site 2	Inhalation	Arsenic	1.0E-9	mg/m^3	2.7E-11	(mg/m^3)	4.3E-03	$(ug/m^3)^{-1}$	1.1E-10	2.1E-10	(mg/m^3)	1.5E-05	(mg/m^3)	0.00001
			Exp. Route Total								1.1E-10					0.00001
		Exposure Point Total									1.1E-10					0.00001
	Exposure Medium Total										1.1E-10					0.00001
Medium Total											1.1E-07					0.002
										Total of Receptor Risks Across All Media	1.1E-07				Total of Receptor Hazards Across All Media	0.002

TABLE 7.3.CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURES
NWIRP CALVERTON, CALVERTON, NEW YORK

Scenario Timeframe: Future
Receptor Population: Recreational Users
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Surface/Subsurface Soil	Surface/Subsurface Soil	Site 2	Ingestion	Arsenic	1.25	mg/kg	8.5E-09	(mg/kg/day)	1.5E+00	$(mg/kg/day)^{-1}$	1.3E-08	3.0E-07	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.0010
			Exp. Route Total								1.3E-08					0.0010
			Dermal	Arsenic	1.25	mg/kg	5.7E-10	(mg/kg/day)	1.5E+00	$(mg/kg/day)^{-1}$	8.5E-10	2.0E-08	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.00007
			Exp. Route Total								8.5E-10					0.00007
		Exposure Point Total									1.4E-08					0.001
	Exposure Medium Total										1.4E-08					0.001
	Air	Site 2	Inhalation	Arsenic	1.0E-6	mg/m^3	1.8E-10	(mg/m^3)	4.3E-03	$(ug/m^3)^{-1}$	7.5E-10	6.1E-09	(mg/m^3)	1.5E-05	(mg/m^3)	0.0004
			Exp. Route Total								7.5E-10					0.0004
		Exposure Point Total									7.5E-10					0.0004
	Exposure Medium Total										7.5E-10					0.0004
Medium Total											1.4E-08					0.001
										Total of Receptor Risks Across All Media	1.4E-08				Total of Receptor Hazards Across All Media	0.001

TABLE 7.4.CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURES
NWIRP CALVERTON, CALVERTON, NEW YORK

Scenario Timeframe: Future
Receptor Population: Recreational Users
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Surface/Subsurface Soil	Surface/Subsurface Soil	Site 2	Ingestion	Arsenic	1.25	mg/kg	3.2E-09	(mg/kg/day)	1.5E+00	$(mg/kg/day)^{-1}$	4.8E-09	3.2E-08	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.0001
			Exp. Route Total								4.8E-09					0.0001
			Dermal	Arsenic	1.25	mg/kg	2.2E-10	(mg/kg/day)	1.5E+00	$(mg/kg/day)^{-1}$	3.3E-10	2.2E-09	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.000007
			Exp. Route Total								3.3E-10					0.000007
		Exposure Point Total									5.1E-09					0.0001
	Exposure Medium Total										5.1E-09					0.0001
	Air	Site 2	Inhalation	Arsenic	1.0E-9	mg/m^3	6.1E-13	(mg/m^3)	4.3E-03	$(ug/m^3)^{-1}$	2.6E-12	6.1E-12	(mg/m^3)	1.5E-05	(mg/m^3)	4.1E-7
			Exp. Route Total								2.6E-12					4.1E-7
		Exposure Point Total									2.6E-12					4.1E-7
	Exposure Medium Total										2.6E-12					4.1E-7
Medium Total											5.1E-09					0.0001
Total of Receptor Risks Across All Media											5.1E-09	Total of Receptor Hazards Across All Media				0.0001

TABLE 7.5.CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURES
NWIRP CALVERTON, CALVERTON, NEW YORK

Scenario Timeframe: Hypothetical
Receptor Population: Residents
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Surface/Subsurface Soil	Surface/Subsurface Soil	Site 2	Ingestion	Arsenic	1.25	mg/kg	1.5E-07	(mg/kg/day)	1.5E+00	$(mg/kg/day)^{-1}$	2.3E-07	5.3E-06	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.02
			Exp. Route Total								2.3E-07					0.02
			Dermal	Arsenic	1.25	mg/kg	5.1E-09	(mg/kg/day)	1.5E+00	$(mg/kg/day)^{-1}$	7.7E-09	1.8E-07	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.0006
			Exp. Route Total								7.7E-09					0.0006
		Exposure Point Total									2.4E-07					0.02
	Exposure Medium Total										2.4E-07					0.02
	Air	Site 2	Inhalation	Arsenic	1.0E-9	mg/m^3	1.9E-11	(mg/m^3)	4.3E-03	$(ug/m^3)^{-1}$	8.1E-11	6.6E-10	(mg/m^3)	1.5E-05	(mg/m^3)	0.00004
			Exp. Route Total								8.1E-11					0.00004
		Exposure Point Total									8.1E-11					0.00004
	Exposure Medium Total										8.1E-11					0.00004
Medium Total											2.4E-07					0.02
										Total of Receptor Risks Across All Media	2.4E-07				Total of Receptor Hazards Across All Media	0.02

TABLE 7.6.CTE
CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURES
NWIRP CALVERTON, CALVERTON, NEW YORK

Scenario Timeframe: Hypothetical
Receptor Population: Residents
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Surface/Subsurface Soil	Surface/Subsurface Soil	Site 2	Ingestion	Arsenic	1.25	mg/kg	5.7E-08	(mg/kg/day)	1.5E+00	$(mg/kg/day)^{-1}$	8.6E-08	5.7E-07	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.002
			Exp. Route Total								8.6E-08					0.002
			Dermal	Arsenic	1.25	mg/kg	2.0E-09	(mg/kg/day)	1.5E+00	$(mg/kg/day)^{-1}$	2.9E-09	2.0E-08	(mg/kg/day)	3.0E-04	(mg/kg/day)	0.00007
			Exp. Route Total								2.9E-09					0.00007
		Exposure Point Total									8.9E-08					0.002
	Exposure Medium Total										8.9E-08					0.002
	Air	Site 2	Inhalation	Arsenic	1.0E-9	mg/m^3	6.6E-11	(mg/m^3)	4.3E-03	$(ug/m^3)^{-1}$	2.8E-10	6.6E-10	(mg/m^3)	1.5E-05	(mg/m^3)	0.00004
			Exp. Route Total								2.8E-10					0.00004
		Exposure Point Total									2.8E-10					0.00004
	Exposure Medium Total										2.8E-10					0.00004
Medium Total											8.9E-08					0.002
										Total of Receptor Risks Across All Media	8.9E-08				Total of Receptor Hazards Across All Media	0.002

RAGS Part D Table 9

Summary of Receptor Risks and Hazards for COPCs

LIST OF TABLES
RAGS PART D TABLE 9
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs

Table No.

Reasonable Maximum Exposures

9.1.RME Construction Workers
9.2.RME Industrial Workers
9.3.RME Child Recreational Users
9.4.RME Adult Recreational Users
9.5.RME Lifelong Recreational Users
9.6.RME Child Residents
9.7.RME Adult Residents
9.8.RME Lifelong Residents

Central Tendency Exposures

9.1.CTE Construction Workers
9.2.CTE Industrial Workers
9.3.CTE Child Recreational Users
9.4.CTE Adult Recreational Users
9.5.CTE Lifelong Recreational Users
9.6.CTE Child Residents
9.7.CTE Adult Residents
9.8.CTE Lifelong Residents

TABLE 9.1.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURES
NWIRP CALVERTON, CALVERTON, NEW YORK

Scenario Timeframe: Future
Receptor Population: Construction Workers
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface/Subsurface Soil	Surface/Subsurface Soil	Site 2	Arsenic	9E-08	--	8E-09	--	9E-08	Skin, CVS	0.01	--	0.001	0.01
			Chemical Total	9E-08	--	8E-09	--	9E-08		0.01	--	0.001	0.01
		Exposure Point Total						9E-08					0.01
	Exposure Medium Total							9E-08					0.01
	Air	Site 2	Arsenic	--	1E-08	--	--	1E-08	NA	--	0.01	--	0.01
			Chemical Total	--	1E-08	--	--	1E-08		- -	0.01	- -	0.01
		Exposure Point Total						1E-08					0.01
	Exposure Medium Total							1E-08					0.01
Medium Total								1E-07					0.03
Receptor Total							Receptor Risk Total	1E-07				Receptor HI Total	0.03

TABLE 9.2.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURES
NWIRP CALVERTON, CALVERTON, NEW YORK

Scenario Timeframe: Future
Receptor Population: Industrial Workers
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface/Subsurface Soil	Surface/Subsurface Soil	Site 2	Arsenic	7E-07	--	1E-07	--	8E-07	Skin, CVS	0.004	--	0.0008	0.005
			Chemical Total	7E-07	--	1E-07	--	8E-07		0.004	--	0.0008	0.005
		Exposure Point Total						8E-07					0.005
	Exposure Medium Total							8E-07					0.005
	Air	Site 2	Arsenic	--	4E-10	--	--	4E-10	NA	--	0.00002	--	0.00002
			Chemical Total	--	4E-10	--	--	4E-10		--	0.00002	--	0.00002
		Exposure Point Total						4E-10					0.00002
	Exposure Medium Total							4E-10					0.00002
Medium Total								8E-07					0.005
Receptor Total							Receptor Risk Total	8E-07				Receptor HI Total	0.005

TABLE 9.3.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURES
NWIRP CALVERTON, CALVERTON, NEW YORK

Scenario Timeframe: Future
Receptor Population: Recreational Users
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface/Subsurface Soil	Surface/Subsurface Soil	Site 2	Arsenic	2E-07	--	3E-08	--	2E-07	Skin, CVS	0.004	--	0.0007	0.005
			Chemical Total	2E-07	--	3E-08	--	2E-07		0.004	--	0.0007	0.005
		Exposure Point Total						2E-07					0.005
	Exposure Medium Total							2E-07					0.005
	Air	Site 2	Arsenic	--	9E-12	--	--	9E-12	NA	--	0.000002	--	0.000002
			Chemical Total	--	9E-12	--	--	9E-12		- -	0.000002	- -	0.000002
		Exposure Point Total						9E-12					0.000002
	Exposure Medium Total							9E-12					0.000002
Medium Total								2E-07					0.005
Receptor Total							Receptor Risk Total	2E-07				Receptor HI Total	0.005

TABLE 9.4.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURES
NWIRP CALVERTON, CALVERTON, NEW YORK

Scenario Timeframe: Future
Receptor Population: Recreational Users
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface/Subsurface Soil	Surface/Subsurface Soil	Site 2	Arsenic	7E-08	--	2E-08	--	8E-08	Skin, CVS	0.0004	--	0.0001	0.0005
			Chemical Total	7E-08	--	2E-08	--	8E-08		0.0004	--	0.0001	0.0005
		Exposure Point Total						8E-08					0.0005
	Exposure Medium Total							8E-08					0.0005
	Air	Site 2	Arsenic	--	4E-11	--	--	4E-11	NA	--	0.000002	--	0.000002
			Chemical Total	--	4E-11	--	--	4E-11		- -	0.000002	- -	0.000002
		Exposure Point Total						4E-11					0.000002
	Exposure Medium Total							4E-11					0.000002
Medium Total								8E-08					0.0005
Receptor Total							Receptor Risk Total	8E-08				Receptor HI Total	0.0005

TABLE 9.5.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURES
NWIRP CALVERTON, CALVERTON, NEW YORK

Scenario Timeframe: Future
Receptor Population: Recreational Users
Receptor Age: Lifelong (Child and Adult)

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface/Subsurface Soil	Surface/Subsurface Soil	Site 2	Arsenic	2E-07	--	4E-08	--	3E-07					
			Chemical Total	2E-07	--	4E-08	--	3E-07					
		Exposure Point Total						3E-07					
	Exposure Medium Total							3E-07					
	Air	Site 2	Arsenic	--	5E-11	--	--	5E-11					
			Chemical Total	--	5E-11	--	--	5E-11					
		Exposure Point Total						5E-11					
	Exposure Medium Total							5E-11					
Medium Total								3E-07					
Receptor Total							Receptor Risk Total	3E-07					

TABLE 9.6.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURES
NWIRP CALVERTON, CALVERTON, NEW YORK

Scenario Timeframe: Hypothetical
Receptor Population: Residents
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface/Subsurface Soil	Surface/Subsurface Soil	Site 2	Arsenic	2E-06	--	2E-07	--	2E-06	Skin, CVS	0.05	--	0.004	0.06
			Chemical Total	2E-06	--	2E-07	--	2E-06		0.05	--	0.004	0.06
		Exposure Point Total						2E-06					0.06
	Exposure Medium Total							2E-06					0.06
	Air	Site 2	Arsenic	--	4E-10	--	--	4E-10	NA	--	0.00007	--	0.00007
			Chemical Total	--	4E-10	--	--	4E-10		- -	0.00007	- -	0.00007
		Exposure Point Total						4E-10					0.00007
	Exposure Medium Total							4E-10					0.00007
Medium Total								2E-06					0.06
Receptor Total							Receptor Risk Total	2E-06				Receptor HI Total	0.06

TABLE 9.7.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURES
NWIRP CALVERTON, CALVERTON, NEW YORK

Scenario Timeframe: Hypothetical
Receptor Population: Residents
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface/Subsurface Soil	Surface/Subsurface Soil	Site 2	Arsenic	9E-07	--	1E-07	--	1E-06	Skin, CVS	0.006	--	0.0007	0.006
			Chemical Total	9E-07	--	1E-07	--	1E-06		0.006	--	0.0007	0.006
		Exposure Point Total						1E-06					0.006
	Exposure Medium Total							1E-06					0.006
	Air	Site 2	Arsenic	--	1E-09	--	--	1E-09	NA	--	0.00007	--	0.00007
			Chemical Total	--	1E-09	--	--	1E-09		- -	0.00007	- -	0.00007
		Exposure Point Total						1E-09					0.00007
	Exposure Medium Total							1E-09					0.00007
Medium Total								1E-06					0.006
Receptor Total							Receptor Risk Total	1E-06				Receptor HI Total	0.006

TABLE 9.8.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURES
NWIRP CALVERTON, CALVERTON, NEW YORK

Scenario Timeframe: Hypothetical
Receptor Population: Residents
Receptor Age: Lifelong (Child and Adult)

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface/Subsurface Soil	Surface/Subsurface Soil	Site 2	Arsenic	3E-06	--	3E-07	--	3E-06					
			Chemical Total	3E-06	--	3E-07	--	3E-06					
		Exposure Point Total						3E-06					
	Exposure Medium Total							3E-06					
	Air	Site 2	Arsenic	--	2E-09	--	--	2E-09					
			Chemical Total	--	2E-09	--	--	2E-09					
		Exposure Point Total						2E-09					
	Exposure Medium Total							2E-09					
Medium Total								3E-06					
Receptor Total							Receptor Risk Total	3E-06					

TABLE 9.1.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURES
NWIRP CALVERTON, CALVERTON, NEW YORK

Scenario Timeframe: Future
Receptor Population: Construction Workers
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface/Subsurface Soil	Surface/Subsurface Soil	Site 2	Arsenic	2E-08	--	1E-09	--	2E-08	Skin, CVS	0.003	--	0.0002	0.004
			Chemical Total	2E-08	--	1E-09	--	2E-08		0.003	--	0.0002	0.004
		Exposure Point Total						2E-08					0.004
	Exposure Medium Total							2E-08					0.004
	Air	Site 2	Arsenic	--	6E-09	--	--	6E-09	NA	--	0.007	--	0.007
			Chemical Total	--	6E-09	--	--	6E-09		- -	0.007	- -	0.007
		Exposure Point Total						6E-09					0.007
	Exposure Medium Total							6E-09					0.007
Medium Total								3E-08					0.01
Receptor Total							Receptor Risk Total	3E-08				Receptor HI Total	0.01

TABLE 9.2.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURES
NWIRP CALVERTON, CALVERTON, NEW YORK

Scenario Timeframe: Future
Receptor Population: Industrial Workers
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface/Subsurface Soil	Surface/Subsurface Soil	Site 2	Arsenic	1E-07	--	4E-09	--	1E-07	Skin, CVS	0.002	--	0.00007	0.002
			Chemical Total	1E-07	--	4E-09	--	1E-07		0.002	--	0.00007	0.002
		Exposure Point Total						1E-07					0.002
	Exposure Medium Total							1E-07					0.002
	Air	Site 2	Arsenic	--	1E-10	--	--	1E-10	NA	--	0.00001	--	0.00001
			Chemical Total	--	1E-10	--	--	1E-10		- -	0.00001	- -	0.00001
		Exposure Point Total						1E-10					0.00001
	Exposure Medium Total							1E-10					0.00001
Medium Total								1E-07					0.002
Receptor Total							Receptor Risk Total	1E-07				Receptor HI Total	0.002

TABLE 9.3.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURES
NWIRP CALVERTON, CALVERTON, NEW YORK

Scenario Timeframe: Future
Receptor Population: Recreational Users
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface/Subsurface Soil	Surface/Subsurface Soil	Site 2	Arsenic	1E-08	--	9E-10	--	1E-08	Skin, CVS	0.0010	--	0.00007	0.001
			Chemical Total	1E-08	--	9E-10	--	1E-08		0.0010	--	0.00007	0.001
		Exposure Point Total						1E-08					0.001
	Exposure Medium Total							1E-08					0.001
	Air	Site 2	Arsenic	--	8E-10	--	--	8E-10	NA	--	0.0004	--	0.0004
			Chemical Total	--	8E-10	--	--	8E-10		- -	0.0004	- -	0.0004
		Exposure Point Total						8E-10					0.0004
	Exposure Medium Total							8E-10					0.0004
Medium Total								1E-08					0.001
Receptor Total							Receptor Risk Total	1E-08				Receptor HI Total	0.001

TABLE 9.4.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURES
NWIRP CALVERTON, CALVERTON, NEW YORK

Scenario Timeframe: Future
Receptor Population: Recreational Users
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface/Subsurface Soil	Surface/Subsurface Soil	Site 2	Arsenic	5E-09	--	3E-10	--	5E-09	Skin, CVS	0.0001	--	0.000007	0.0001
			Chemical Total	5E-09	--	3E-10	--	5E-09		0.0001	--	0.000007	0.0001
		Exposure Point Total						5E-09					0.0001
	Exposure Medium Total							5E-09					0.0001
	Air	Site 2	Arsenic	--	3E-12	--	--	3E-12	NA	--	0.0000004	--	0.0000004
			Chemical Total	--	3E-12	--	--	3E-12		- -	0.0000004	- -	0.0000004
		Exposure Point Total						3E-12					0.0000004
	Exposure Medium Total							3E-12					0.0000004
Medium Total								5E-09					0.0001
Receptor Total							Receptor Risk Total	5E-09				Receptor HI Total	0.0001

TABLE 9.5.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURES
NWIRP CALVERTON, CALVERTON, NEW YORK

Scenario Timeframe: Future
Receptor Population: Recreational Users
Receptor Age: Lifelong (Child and Adult)

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface/Subsurface Soil	Surface/Subsurface Soil	Site 2	Arsenic	2E-08	--	1E-09	--	2E-08					
			Chemical Total	2E-08	--	1E-09	--	2E-08					
		Exposure Point Total						2E-08					
	Exposure Medium Total							2E-08					
	Air	Site 2	Arsenic	--	8E-10	--	--	8E-10					
			Chemical Total	--	8E-10	--	--	8E-10					
		Exposure Point Total						8E-10					
	Exposure Medium Total							8E-10					
Medium Total								2E-08					
Receptor Total							Receptor Risk Total	2E-08					

TABLE 9.6.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURES
NWIRP CALVERTON, CALVERTON, NEW YORK

Scenario Timeframe: Hypothetical
Receptor Population: Residents
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface/Subsurface Soil	Surface/Subsurface Soil	Site 2	Arsenic	2E-07	--	8E-09	--	2E-07	Skin, CVS	0.02	--	0.0006	0.02
			Chemical Total	2E-07	--	8E-09	--	2E-07		0.02	--	0.0006	0.02
		Exposure Point Total						2E-07					0.02
	Exposure Medium Total							2E-07					0.02
	Air	Site 2	Arsenic	--	8E-11	--	--	8E-11	NA	--	0.00004	--	0.00004
			Chemical Total	--	8E-11	--	--	8E-11		- -	0.00004	- -	0.00004
		Exposure Point Total						8E-11					0.00004
	Exposure Medium Total							8E-11					0.00004
Medium Total								2E-07					0.02
Receptor Total							Receptor Risk Total	2E-07				Receptor HI Total	0.02

TABLE 9.7.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURES
NWIRP CALVERTON, CALVERTON, NEW YORK

Scenario Timeframe: Hypothetical
Receptor Population: Residents
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface/Subsurface Soil	Surface/Subsurface Soil	Site 2	Arsenic	9E-08	--	3E-09	--	9E-08	Skin, CVS	0.002	--	0.00007	0.002
			Chemical Total	9E-08	--	3E-09	--	9E-08		0.002	--	0.00007	0.002
		Exposure Point Total						9E-08					0.002
	Exposure Medium Total							9E-08					0.002
	Air	Site 2	Arsenic	--	3E-10	--	--	3E-10	NA	--	0.00004	--	0.00004
			Chemical Total	--	3E-10	--	--	3E-10		- -	0.00004	- -	0.00004
		Exposure Point Total						3E-10					0.00004
	Exposure Medium Total							3E-10					0.00004
Medium Total								9E-08					0.002
Receptor Total							Receptor Risk Total	9E-08				Receptor HI Total	0.002

TABLE 9.8.CTE
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
CENTRAL TENDENCY EXPOSURES
NWIRP CALVERTON, CALVERTON, NEW YORK

Scenario Timeframe: Hypothetical
Receptor Population: Residents
Receptor Age: Lifelong (Child and Adult)

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk					Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	External (Radiation)	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface/Subsurface Soil	Surface/Subsurface Soil	Site 2	Arsenic	3E-07	--	1E-08	--	3E-07					
			Chemical Total	3E-07	--	1E-08	--	3E-07					
		Exposure Point Total						3E-07					
	Exposure Medium Total							3E-07					
	Air	Site 2	Arsenic	--	4E-10	--	--	4E-10					
			Chemical Total	--	4E-10	--	--	4E-10					
		Exposure Point Total						4E-10					
	Exposure Medium Total							4E-10					
Medium Total								3E-07					
Receptor Total							Receptor Risk Total	3E-07					

Notes:
1 - Mutagenic chemicals were evaluated in accordance with USEPA's Supplemental Guidance for Assessing Susceptibility from Early-Life Exposure to Carcinogens (2005).