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INTERIM MEASURES REPORT SOLID WASTE MANAGEMENT UNIT 8 (SWMU 8) BUILDING 106 POND NSA CRANE IN
6/1/2008
TETRA TECH

14

Comprehensive Long-term Environmental Action Navy

CONTRACT NUMBER N62467-04-D-0055

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Interim Measures Report

for

SWMU 8 – Building 106 Pond

Naval Surface Warfare Center Crane
Crane, Indiana

Contract Task Order 0020

June 2008

NAVFAC
Naval Facilities Engineering Command
Midwest
201 Decatur Avenue
Building IA, Code EV
Great Lakes, Illinois 60088

TETRA TECH NUS, Inc.

060805/P

INTERIM MEASURES REPORT
for
SWMU 8 – BUILDING 106 POND

NAVAL SURFACE WARFARE CENTER CRANE
CRANE, INDIANA

COMPREHENSIVE LONG-TERM
ENVIRONMENTAL ACTION NAVY (CLEAN) CONTRACT

Submitted to:
Naval Facilities Engineering Command Midwest
201 Decatur Avenue
Building 1A, Code EV
Great Lakes, Illinois 60088

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CONTRACT NUMBER N62467-04-D-0055
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LIST OF ACRONYMS

BERA	Baseline Ecological Risk Assessment
CFU	colony-forming units
CLEAN	Comprehensive Long-Term Environmental Action Navy
COPC	chemical of potential concern
CTO	Contract Task Order
DCA	Dichloroethane
DCE	Dichloroethene
DO	dissolved oxygen
EEQ	Ecological Effects Quotient
EMAC	Environmental Multiple Award Contractor
EP	Extraction Procedure
HCL	Hydrochloric
HHRA	Human Health Risk Assessment
HI	hazard index
IAS	Initial Assessment Study
IDEM	Indiana Department of Environmental Management
IEUBK	Integrated Exposure Uptake Biokinetic
ILCR	incremental lifetime cancer risk
IM	Interim Measure
IMWP	Interim Measures Work Plan
MCL	Maximum Contaminant Level
mL	milliliter
NAVFAC	Naval Facilities Engineering Command
NEESA	Naval Energy and Environmental Support Activity
NOAEL EEQ	No Observed Adverse Effect Level Ecological Effects Quotient
NSWC	Naval Surface Warfare Center
PAHs	polynuclear aromatic hydrocarbon
PCB	Polychlorinated Biphenyl
PCE	Tetrachloroethene
PCP	Pentachlorophenol
ppb	part per billion
ppm	part per million
PVC	Polyvinyl Chloride

QAPP	Quality Assurance Project Plan
RCRA	Resource Conservation and Recovery Act
RME	reasonable maximum exposure
RFI	RCRA Facility Investigation
SERA	screening-level ecological risk assessment
sf	square feet
SWMU	Solid Waste Management Unit
SVOC	semivolatile organic compound
TCA	Trichloroethane
TCE	Trichloroethene
TCLP	Toxicity Characteristic Leaching Procedure
Tetra Tech	Tetra Tech NUS, Inc.
TOC	total organic carbon
µg/dL	microgram per deciliter
USEPA	United States Environmental Protection Agency
VOC	volatile organic compound

1.0 INTRODUCTION

1.1 PURPOSE

The purpose of this Interim Measures Report is to describe the activities performed during the interim remedial action conducted at Solid Waste Management Unit (SWMU) 8 – Building 106 Pond, at Naval Surface Warfare Center (NSWC) Crane located in Crane, Indiana. The activities associated with this interim action were completed in accordance with the Interim Measures Work Plan (IMWP) for SWMU 8 - Building 106 Pond (Tetra Tech, 2006a) and the Resource Conservation and Recovery Act (RCRA) Addendum No. 1 to the Quality Assurance Project Plan for SWMUs 8, 15, 18, 19, 20 and The Old Gun Tub Storage Lot for Interim Measures at SWMU 7 (Old Rifle Range), SWMU 8 (Building 106 Pond), SWMU 13 (Mine Fill B), and SWMU 17 (PCB Burial/Pole Yard) (Tetra Tech, 2006b). Activities included clearing of trees and other vegetation directly around the Building 106 Pond, removal of fencing, dewatering pond, excavation and dewatering of contaminated sediments and soils from within the pond, treatment and discharge of all accumulated water to the NSWC Crane sanitary treatment plant, off-site disposal of the contaminated sediments and soils, and regrading and seeding of the former pond area. In conjunction with the removal of contaminated media from the Building 106 Pond, the former Industrial Water Treatment Facility located immediately south of the pond was also removed. This work was performed for the United States Navy, Naval Facilities Engineering Command (NAVFAC) Midwest by Tetra Tech NUS, Inc. (Tetra Tech) under Contract Task Order (CTO) 0020 of the Comprehensive Long-Term Environmental Action Navy (CLEAN) IV Contract Number N62467-04-D-0055. Initial field activities began in April 2007, and work was completed in November 2007.

1.2 FACILITY DESCRIPTION

NSWC Crane is located in the southern portion of Indiana, approximately 75 miles southwest of Indianapolis and 71 miles northwest of Louisville, Kentucky, immediately east of Crane Village and Burns City (Figure 1-1). NSWC Crane encompasses 62,463 acres (approximately 98 square miles), most of which are located in the northern portion of Martin County. Smaller portions of NSWC Crane are located in Greene, Daviess, and Lawrence Counties. NSWC Crane is located in a rural, sparsely populated area. Most of NSWC Crane is forested, and the surrounding area is wooded or farmed land. NSWC Crane provides material, technical, and logistical support to the Navy for equipment, shipboard weapons systems, and nonexpendable ordnance items. In addition, NSWC Crane supports the Crane Army Ammunition Activity with production, renovation, storage, shipment, demilitarization, and disposal of conventional ammunition.

1.3 SITE DESCRIPTION AND HISTORY

SWMU 8 is located in the east-central portion of NSWC Crane as shown on Figure 1-1. SWMU 8 included a surface pond located east of Building 106 (Figure 1-2). The pond has been studied extensively, and the nature and extent of contamination and associated risks at the pond are based on the results of these investigations. The reports generated from these investigations include the following:

- Naval Ammunition Depot, Crane Indiana, Pilot Test Final Report (Kent R., et al., 1973).
- Initial Assessment Study (IAS) [Naval Energy and Environmental Support Activity (NEESA), 1983].
- Preliminary Review/Site Inspection of NWSC Crane (A.T. Kearny, Inc., 1987).
- RCRA Facility Investigation (RFI) Phase I Environmental Monitoring Reports, SWMUs 16/06, 14/10, and 16/16 (Halliburton NUS, 1992)
- RCRA Facility Investigation for Building 106 Pond (SWMU 8) (Tetra Tech, 2006c)

A summary of these environmental investigations is provided in the remainder of this section.

The Building 106 Pond encompassed 2,550 square feet (sf) and was located within SWMU 8, which occupies an area of 5.8 acres (Figure 1-2). Buildings 106 and 107 are located west and northwest of the pond, respectively. A deep drainage channel is located north and east of the pond, and a former Industrial Water Treatment Facility was located south of the pond. The pond had been surrounded by trees and a wire fence. The area east and northeast of the pond is wooded. South of the pond is an open grass area. In addition to these site features, an electrical sub-station, overhead electrical lines, and monitoring wells are located within the Building 106 Pond site. A detailed site map is provided as Figure 1-2.

Buildings 106 and 107 have historically been involved in the overhaul of projectile casings. Building 106 housed a cleaning process consisting of a caustic wash, a trichloroethene (TCE) degreaser, and hydrochloric (HCL) acid wash. During World War II, the ignition ends of smokeless powder bag charges were colored red in Building 106 using naphthalene sulfonic acid sodium salt dyes. In the mid-1970s, phosphatizing of steel was conducted in Building 106. The phosphatizing process involved applying a zinc phosphate coating to projectiles, and it also included a conditioning rinse step that used a dilute solution of either chromic acid or chromic and phosphoric acids (Tetra Tech, 2006).

Building 107 activities included refinishing of metal and wooden boxes. Metal boxes were first cleaned utilizing TCE. Approximately 700 gallons of TCE was used annually for this process. The metal boxes were then painted in booths equipped with water washes for particulate control. The amount of dust

collected daily from the accumulator/baghouse associated with the paint booths was approximately 300 to 400 pounds. The process for refinishing wooden boxes was the same as for metal boxes with an additional step that included dipping the wooden boxes into a 5 percent pentachlorophenol (PCP) solution for 5 minutes followed by partial drying in a drip pan. Approximately 8,800 gallons of PCP were used annually (Tetra Tech, 2006).

Activities in Buildings 106 and 107 also included the application of coatings to Hawk missile containers in paint booths. One of the paint booths applied a zinc chromate coating containing 40 percent by weight of toluene, and another paint booth applied an olive drab coating containing 22 percent naphtha. Each of the paint booths utilized approximately 500 gallons of coating material per year. Prior to coating, the Hawk missile containers were sandblasted with silica, which produced approximately 900 to 1,000 pounds of baghouse residue per day (Tetra Tech, 2006).

During industrial activities in Buildings 106 and 107, splash drag-out and overflows of wastewater from Buildings 106 and 107 were discharged to the unlined Building 106 Pond through floor drains via 6-inch-diameter vitrified clay pipe (Tetra Tech, 2006). Drainage discharges may have contained TCE, PCP, paint residue, and heavy metals. In addition, oily wastewater from leaking compressors in Building 107 also drained to the Building 106 Pond (A.T. Kearny, 1987). Currently, repair operations are intermittently performed in Buildings 106 and 107 (Tetra Tech, 2006).

Prior to 1972, water discharged from the Building 106 Pond via a 15-inch-diameter corrugated metal pipe to a drainage ditch on the western side of the pond. The pond's discharge passed through a scum baffle to prevent floating oils and greases from entering the drainage ditch. Sometime after 1972, the pond began discharging through a new 4-inch polyvinyl chloride (PVC) pipe to the Industrial Water Treatment Facility (Building 2961). All discharges from the Industrial Water Treatment Facility flowed to the NSWC Crane sanitary sewer system (NEESA, 1983). With the addition of the new discharge pipe to the Industrial Water Treatment Facility, the 15-inch-diameter corrugated metal pipe was filled with concrete to prevent continuing discharge to the drainage ditch, the pond's earthen berm crest elevation was increased by 1 foot, and the earthen berm crest width was increased to 5 feet.

The physiography, topography, meteorology, hydrology, geology, and hydrogeology of SWMU 8 is detailed in Sections 2.1.2 through 2.1.6 of the IMWP (Tetra Tech, 2006a).

1.4 PREVIOUS SAMPLING AND ANALYSIS

In 1972, approximately 47 samples were collected from effluent discharging from the Building 106 Pond. These samples were analyzed for water quality parameters [total organic carbon (TOC), turbidity, dissolved oxygen (DO), etc.], metals, and explosives. Analytical results indicated elevated metals concentrations with values as high as 20 parts per million (ppm) for lead, 3.5 ppm for chromium, 1 part per billion (ppb) for mercury, 20 ppm for zinc, and 0.2 ppm for cadmium (Kent, et al., 1973).

The IAS (NEESA, 1983) recommended two soil samples from the Building 106 Pond be collected and analyzed for mercury, chromium, phosphorus, and TCE. In 1985, two samples were analyzed for metals via the Extraction Procedure (EP) Toxicity Test and for oil/grease content. Measured concentrations were less than Toxicity Characteristic Leaching Procedure (TCLP)/EP Toxicity regulatory action levels. In 1987, a visual site inspection noted that the edges of the pond were oil-stained and that the surface of the pond exhibited an oily sheen (A.T. Kearny, 1987).

As part of the Phase I Environmental Monitoring Report (Halliburton NUS, 1992), background data and site observations were reviewed to determine the likelihood of a release posing a potential threat to human health and/or the environment. Data and observations pertinent to SWMU 8 were reviewed to assess the potential for contaminant releases to groundwater, surface water, air, and soil. Data were interpreted and release determinations were made according to the approach described in the RCRA Facility Assessment Guidance (USEPA, 1986). Based on waste characteristics related to historical introduction of mobile compounds and locational and operational characteristics, potential releases to groundwater, soil, and air were deemed likely. Based on analytical records and reports, it was determined that releases to surface water had occurred.

The most recent investigation at SWMU 8 was the RFI conducted in 2004 and 2005. This investigation was conducted in three phases and included the installation of permanent and temporary monitoring wells, soil borings, and collection of subsurface soil, surface soil, sediment, surface water, and groundwater samples. The RFI Round 1 sampling event was conducted in December 2004 and January 2005, Round 2 sampling event was conducted in May and June 2005, and the Round 3 sampling event was conducted in September and October 2005. All work was conducted in accordance with the procedures and methodologies described in the U.S. Environmental Protection Agency (USEPA)- and Indiana Department of Environmental Management (IDEM)-approved Quality Assurance Project Plan (QAPP) (Tetra Tech, 2004). The RFI also included the preparation of a human health and ecological risk assessment. The results of the RFI, along with the results of the previous investigations, adequately

identified the extent of contamination associated with SWMU 8 and the environmental conditions within the Building 106 Pond area (Tetra Tech, 2006).

1.5 EXTENT OF CONTAMINATION

The following paragraphs are excerpts from the 2006 RFI Report (Tetra Tech, 2006b) summarizing the extent of contamination and human health and ecological risks associated with contamination within the Building 106 Pond area.

1.5.1 Chemical Distribution

The degree and extent of contamination at SWMU 8 is rather limited and reasonably well bounded. The primary contaminants are chlorinated volatile organic compounds (VOCs) in pond sediments, pond water, and groundwater, and 1,4-dioxane in groundwater only. Groundwater contaminant distribution suggests that a source of VOC and 1,4-dioxane contamination, other than the Building 106 Pond, appears to exist in the area immediately south of Building 106. Based on the RFI results, any contaminant source area south of Building 106 is expected to be minor compared to the Building 106 Pond source.

Several groundwater metals concentrations exceeded federal Maximum Contaminant Levels (MCLs) and upgradient concentrations, but no link to SWMU 8 for the elevated metals concentrations was found. Slightly elevated concentrations of some metals were detected in the Building 106 Pond, but the elevated concentrations were not nearly as high as the chlorinated VOC concentrations. Metals concentrations in the drainage ditch and tributary soil samples appear to reflect natural conditions. Therefore, metals do not appear to be significant site-related contaminants for SWMU 8 or the drainage ditches and tributaries.

Surface water and sediment contamination at SWMU 8 is limited and well bounded. Sample location 08SW/SD006 exhibited the highest surface water and sediment contamination. Surface water and bottom sediment contamination at SWMU 8 is essentially limited to polynuclear aromatic hydrocarbons (PAHs) and metals near sample locations 08SW/SD006 and 08SW/SD015 through 08SW/SD017, which were all located to the east (downgradient) of the Bu9ilding 106 Pond. Data indicate that surface water and sediment in the drainage ditches located east of the pond are relatively contaminant free and that surface water and sediment in the Building 106 Pond are by far the most contaminated media at SWMU 8. The greatest number of surface water screening value exceedances for metals occurred in a seep sample located southwest of the Building 106 Pond. At this location, groundwater from the seep is considered to be surface water. Except for this location, metals concentrations in surface water and sediment were comparable throughout the drainage ditch and tributary. Counts of colony-forming units

(CFUs) for total coliform bacteria exceeded 2,400 units per 100 milliliters (mL) in surface water. Fecal coliform counts exceeded 5 CFUs per 100 mL in groundwater. A sanitary sewer line break was identified and repaired at about the same time as the RFI was prepared. Thus, the source of the fecal coliform in surface water was identified.

A comparison of metals concentrations in filtered and unfiltered surface water samples reveals that the majority of the detected results for aluminum, arsenic, chromium, cobalt, copper, iron, lead, tin, vanadium, and zinc are associated with suspended solids within the surface water. A similar comparison for groundwater reveals that the majority of the detected results for aluminum, arsenic beryllium, cadmium, chromium, cobalt, copper, iron, lead, mercury, tin, vanadium, and zinc are also associated with suspended solids within the groundwater.

1.5.2 Human Health Risks

This section summarizes the results of the Human Health Risk Assessment (HHRA) performed for SWMU 8.

The baseline HHRA for SWMU 8 was performed to characterize the potential risks to likely human receptors under current and potential future land uses. Potential receptors under current land use scenarios are maintenance workers, occupational workers, and adolescent trespassers. Potential receptors under future land use scenarios are construction workers, child and adult recreational users, and hypothetical child and adult residents. Although future land use is likely to be the same as current land use (military/industrial usage), potential future receptors were evaluated in the baseline HHRA primarily for decision-making purposes.

Direct contact chemicals of potential concern (COPCs) evaluated in the HHRA for SWMU 8 are as follows:

- Surface soil in the vicinity of the Building 106 Pond - benzo(a)pyrene, aluminum, arsenic, iron, manganese, and vanadium.

- Subsurface soil in the vicinity of the Building 106 Pond - benzo(a)pyrene, aluminum, antimony, arsenic, iron, manganese, and vanadium.

- Surface soil in the grass and gravel areas around Buildings 106 and 107 - benzo(a)pyrene, benzo(b)fluoranthene, dibenzo(a,h)anthracene, aluminum, arsenic, iron, manganese, and vanadium.

- Subsurface soil in the grass and gravel areas around Buildings 106 and 107 - aluminum, arsenic, iron, manganese, thallium, and vanadium.

- Surface soil under Building 106 and surrounding pavement - benzo(a)pyrene, dibenzo(a,h)anthracene, aluminum, arsenic, iron, and vanadium.

- Subsurface soil under Building 106 and surrounding pavement - aluminum, arsenic, iron, and vanadium.

- Surface soil under Building 107 and surrounding pavement - none.

- Subsurface soil under Building 107 and surrounding pavement - none.

- Groundwater in shallow bedrock and overburden zones - 1,1,1-trichloroethane (TCA), 1,1,2-TCA, 1,1-dichloroethane (DCA), 1,1-dichloroethene (DCE), 1,2-DCA, benzene, chloroethane, cis-1,2-DCE, toluene, trans-1,2-DCE, TCE, vinyl chloride, 1,4-dioxane, 3- and 4-methylphenol, aluminum, antimony, arsenic, barium, beryllium, cadmium, chromium, cobalt, iron, lead, manganese, thallium, and vanadium.

- Groundwater in the intermediate zone - 1,1,1-TCA, 1,1,2-TCA, 1,1-DCA, 1,1-DCE, 1,2-DCA, chloroform, cis-1,2 DCE, tetrachloroethene (PCE), trans-1,2-DCE, TCE, vinyl chloride, 1,4-dioxane, aluminum, arsenic, cobalt, iron, manganese, nickel.

- Groundwater in the deep zone - 1,4-dioxane, aluminum, arsenic, iron, manganese, and vanadium.

- Surface water in the Building 106 Pond - 1,1-DCA, 1,1-DCE, 2-butanone, 4-methyl-2-pentanone, chloroethane, cis-1,2-DCE, toluene, TCE, vinyl chloride, xylenes, 2-methylnaphthalene, aluminum, antimony, arsenic, barium, cadmium, chromium, copper, iron, lead, manganese, vanadium, and zinc.

- Surface water in tributaries - cis-1,2-DCE, TCE, vinyl chloride, aluminum, arsenic, chromium, iron, lead, manganese, thallium, and vanadium.

- Surface water in the main stream - aluminum, iron, and manganese.

- Sediment in the Building 106 Pond - 1,1,1-TCA, 1,1-DCA, 1,1-DCE, chloroethane, cis-1,2-DCE, trans-1,2-DCE, TCE, benzo(a)pyrene, arsenic, iron, vanadium, and perchlorate.

- Sediment in tributaries - benzo(a)pyrene, aluminum, arsenic, iron, manganese, and vanadium.

- Sediment in the main stream - aluminum, arsenic, iron, manganese, and vanadium.

In addition to the COPCs based on direct human contact listed above, COPCs were also identified for migration from soil to groundwater and from groundwater through building foundations into indoor air (see Section 7.2.3 of the RFI).

1.5.2.1 Risk Assessment Results - Exposure to Soil

Quantitative estimates of noncarcinogenic and carcinogenic risks [hazard indices (HIs) and incremental lifetime cancer risk (ILCRs), respectively] were developed for potential human receptors. Target organ-specific HIs for all receptors assumed to be exposed to surface soil and subsurface soil under the reasonable maximum exposure (RME) scenario were less than or equal to unity (1).

ILCRs for all receptors assumed to be exposed to surface and subsurface soil were less than or within USEPA's target risk range of 1×10^{-4} to 1×10^{-6}.

1.5.2.2 Risk Assessment Results - Exposure to Surface Water and Sediment

Target organ-specific HIs for all receptors assumed to be exposed to surface water and sediment under the RME scenario were less than or equal to unity.

ILCRs for all receptors assumed to be exposed to surface water and sediment were less than or within USEPA's target risk range of 1×10^{-4} to 1×10^{-6}.

Although the risks calculated for direct contact with surface water and sediment in the Building 106 Pond were acceptable, the contamination from the pond, especially VOCs, has likely impacted other site media. The sediment in the pond is the likely source of the COPCs identified in groundwater which is therefore the basis for initiating sediment removal activities at the pond.

1.5.2.3 Risk Assessment Results - Exposure to Groundwater

Shallow Bedrock and Overburden Zones - Target organ-specific HIs associated with potable use of shallow groundwater by hypothetical child and adult residents exceeded unity. Aluminum, arsenic, iron, manganese, and vanadium were the major contributors to the HIs for the hypothetical child resident. Aluminum, arsenic, iron, and manganese were the major contributors to the HIs for the adult resident. Note that high turbidity readings were reported for the sample on which the risks from shallow groundwater were based; the elevated concentrations of aluminum, arsenic, iron, and vanadium in the sample are likely due to the presence of elevated suspended solids.

The ILCRs for domestic use of shallow groundwater by hypothetical future residents exceeded USEPA's target risk range. Arsenic was the major contributor to the ILCRs for shallow groundwater (ILCR greater than 1×10^{-4}). Vinyl chloride (ILCR greater than 1×10^{-5}), TCE, and 1,4-dioxane (ILCRs between 1×10^{-5} and 1×10^{-6}) were minor contributors to the ILCRs. As stated above, the elevated concentration of arsenic used to estimate the risks was likely due to the presence of suspended matter in the unfiltered groundwater sample. The concentrations of arsenic in most shallow overburden/bedrock groundwater samples were less than the MCL.

Intermediate Zone - HIs associated with the potable use of intermediate zone groundwater by the occupational worker, child recreational user, hypothetical child resident, and hypothetical adult resident exceeded unity. Manganese was the major contributor to the HIs for the occupational worker, child recreational user, and hypothetical adult resident. 1,1-DCE, TCE, iron, manganese, and nickel were the major contributors to the HI for hypothetical child resident.

ILCRs for domestic use of intermediate zone groundwater by the occupational worker and hypothetical future resident exceeded USEPA's target risk range. TCE was the major contributor to the ILCRs for intermediate zone groundwater (ILCR greater than 1×10^{-4}). Several other VOCs, 1,4-dioxane, and arsenic (ILCRs less than 1×10^{-4} but greater than 1×10^{-6}) were minor contributors to the ILCRs.

Deep Zone - HIs for the potable use of deep zone groundwater by the hypothetical future child resident exceeded unity. Iron and manganese were the major contributors to the HIs for the child resident.

ILCRs for domestic use of deep zone groundwater for all potential receptors evaluated were within USEPA's target risk range.

1.5.2.4 Risk Assessment Results - Exposure to Lead

Exposures to lead in surface water from the Building 106 Pond and tributaries and in shallow groundwater were evaluated using USEPA's Integrated Exposure Uptake Biokinetic (IEUBK) Model. The IEUBK Model analysis indicated that blood-lead levels for children based on exposure to average lead concentrations at SWMU 8 did not exceed the USEPA goal that blood-lead levels of no more than 5 percent of exposed children should exceed the 10 microgram per deciliter (µg/dL) blood-lead level of concern.

In summary, no significant potential human health risks are expected for exposures to surface soil, surface water, and sediment under current or future land use at SWMU 8. Noncarcinogenic and/or carcinogenic risks exceeded USEPA risk benchmarks for occupational workers, child and adult recreational users, and hypothetical child and adult residents using groundwater as a potable water supply. VOCs, 1,4-dioxane, and several metals were the major contributors to the risks for shallow and intermediate zone groundwater. Iron and manganese were the major contributors to the risks for deep zone groundwater. As discussed in the risk assessment section of the RFI, the risk estimates were subject to a number of significant uncertainties. Among these is the fact that comparisons to background concentrations were not used in the COPC screening process, concentrations of metals in some groundwater samples appear to be elevated because of suspended matter in the samples; and groundwater is not currently used nor is it expected to be used as a potable water source in the future at SWMU 8.

1.5.3 Ecological Risks

A screening-level ecological risk assessment (SERA) was performed for SWMU 8, Building 106 Pond area (Tetra Tech, 2006). Several chemicals were retained as COPCs as a result of the initial screening of surface soil, sediment, and surface water sample results. The list of chemicals initially selected in the SERA as COPCs were further evaluated in Step 3a, the first step of the Baseline Ecological Risk Assessment (BERA). After a review of alternate toxicity information (based on soil invertebrates, plants, and aquatic receptors) was conducted, and maximum and average soil concentrations were compared to the alternate toxicity information. For the surface soil samples, no chemicals were retained as COCs because all concentrations were less than alternate benchmarks or soil background values. For pond soil and sediment samples, several concentrations were greater than screening levels, but because the pond sediments will be excavated, these analytes were not retained as COCs.

Similarly, the list of chemicals initially selected as COPCs in sediment and surface water were further evaluated in Step 3a. After a review of alternate toxicity information (based on aquatic organisms) and other Step 3a factors, maximum and average concentrations of sediment and surface water COPCs were

compared to the alternate toxicity information. No chemicals were retained as COCs for further evaluation for benthic and aquatic organisms, mainly because concentrations were less than alternate screening levels and upgradient concentrations, concentrations in surface soil were not site related, and concentrations were less than screening levels in filtered samples.

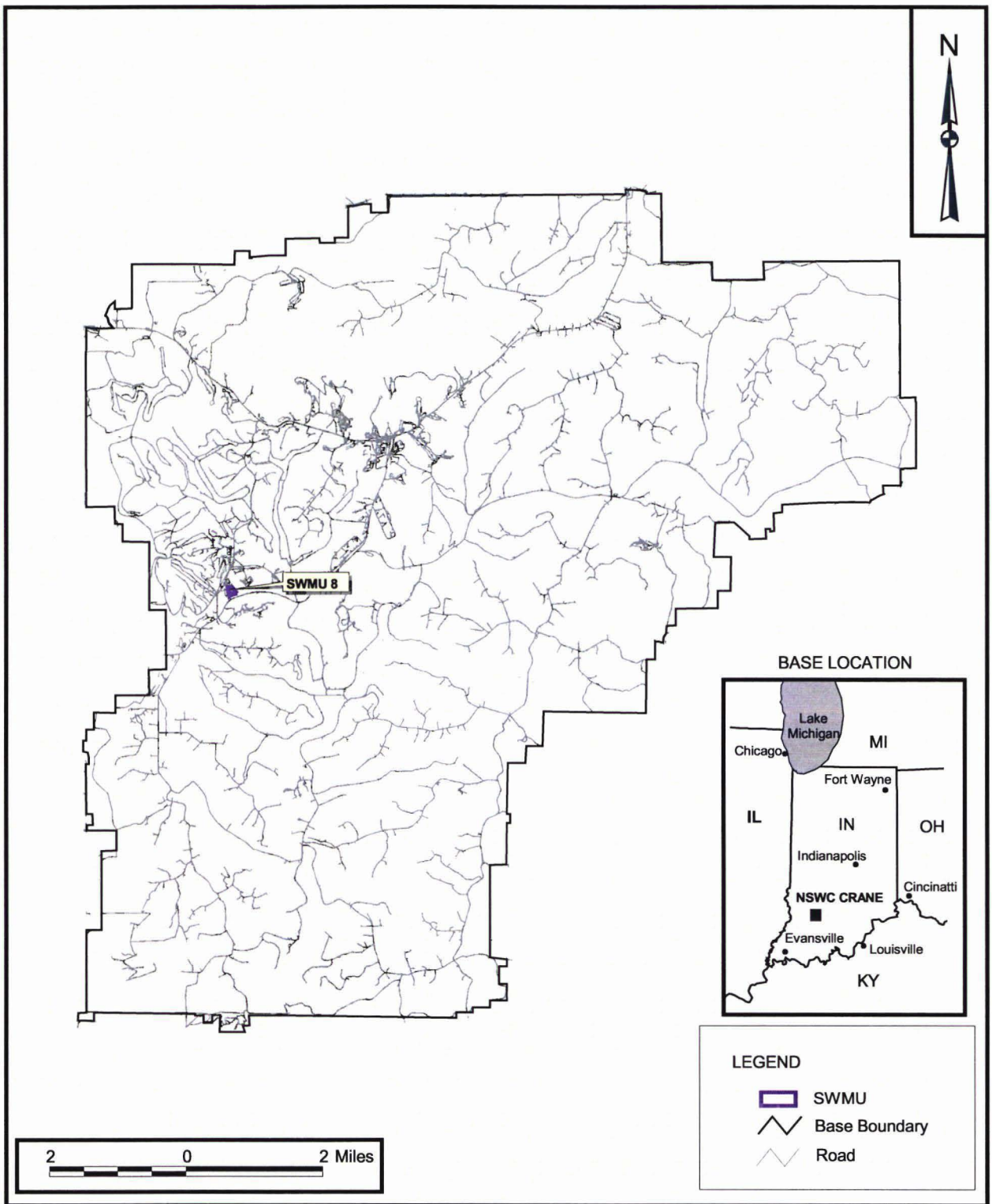
The chemicals selected as COPCs for risks to wildlife were also further evaluated in Step 3a. No chemicals were retained as COCs for further evaluation for several reasons. For the woodcock, although the zinc No Observed Adverse Effect Level (NOAEL) ecological effects quotient (EEQ) was greater than 1.0 for site soil concentrations, the NOAEL EEQ was also greater than 1.0 using background zinc concentrations. Also, the location of the maximum zinc concentration has poor habitat for insectivorous birds. For the mink, a site use factor of 10 percent was used, which is likely conservative. Also, the body weight scaling used for large mammals is conservative. Because the NOAEL EEQs are only slightly greater than 1.0 for the tributary and main stream, risks are considered to be acceptable.

1.6 REPORT ORGANIZATION

The following sections are included in the remainder of this document:

- Section 2.0 presents the activities associated with this interim remedial action and the data associated with the confirmation sampling conducted upon excavation and removal of sediment and soil from the Building 106 Pond.

- Section 3.0 presents the report conclusions based on the results of the interim remedial action activities.



DRAWN BY	DATE		CONTRACT NUMBER
S. STROZ	04/04/06	SITE LOCATION MAP SWMU 8 - BUILDING 106 POND INTERIM MEASURES REPORT NSWC CRANE CRANE, INDIANA	CTO 0020
CHECKED BY	DATE		APPROVED BY / DATE
T. ADAMS	06/18/08		APPROVED BY / DATE
COST/SCHEDULE-AREA			DRAWING NO. FIGURE 1-1 / REV 0
SCALE AS NOTED			

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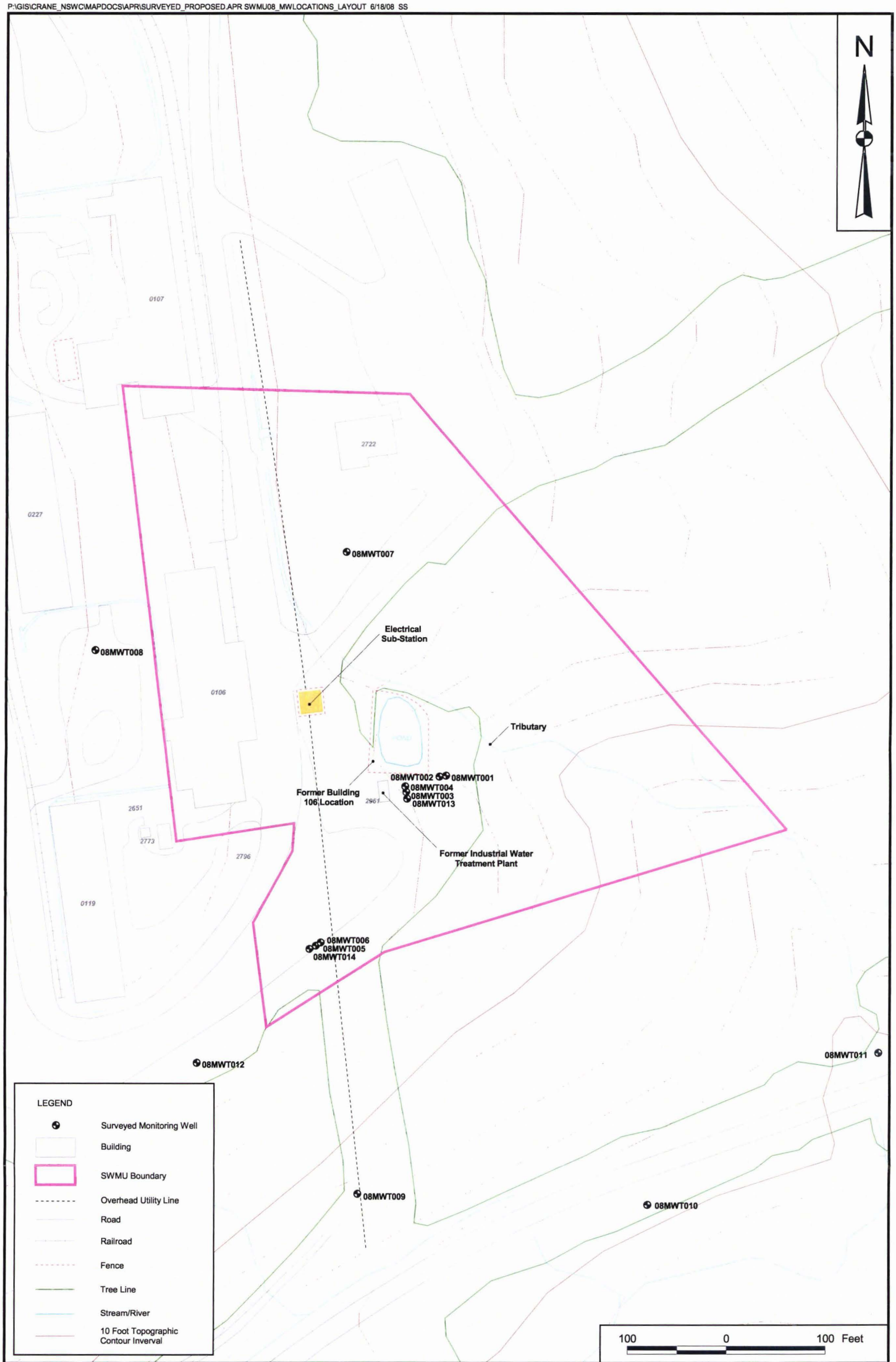

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CHECKED BY	DATE
T. ADAMS	6/18/08
COST/SCHEDULE-AREA	
SCALE	
AS NOTED	

NAVFAC

SITE LAYOUT MAP
SWMU 8 - BUILDING 106 POND
INTERIM MEASURES REPORT
NSWC CRANE
CRANE, INDIANA

CONTRACT NUMBER	
CTO 0020	
APPROVED BY	DATE
—	—
APPROVED BY	DATE
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DRAWING NO.	REV
FIGURE 1 - 2	0

2.0 DESCRIPTION OF INTERIM REMEDIAL ACTIVITIES

2.1 PURPOSE

The purpose of this section is to present the field activities conducted as part of the interim remedial action as well as the sample results used to confirm that no further removal of soil or sediment from the Building 106 Pond is required to satisfy regulatory requirements. The SWMU 8 IMWP (Tetra Tech, 2006a) addressed dewatering of the pond, excavation of sediment and soil from within the pond, dewatering of excavated sediment and soil, treatment and discharge of all accumulated water to the NSWC Crane sanitary treatment plant, and off-site disposal of the contaminated sediment and soil. The RCRA Addendum No. 1 to the QAPP (Tetra Tech, 2006b) described sampling locations, methods, and rationales for the sampling activities conducted in support of the Interim Measure (IM) at the Building 106 Pond. Details regarding the environmental sampling, including sampling locations and analyses, are provided in this section. Photographs taken during the remedial activities are presented in Appendix A.

The Environmental Multiple Award Contract (EMAC) Contractor responsible for all on-site construction and excavation activities conducted in accordance with the IMWP was TolTest, Inc. (TolTest). Tetra Tech personnel completed the verification and confirmation sampling activities.

2.2 SITE PREPARATION

Site preparation included mobilization of personnel and equipment to the site, construction of staging areas, and establishing erosion and sediment controls clearing and grubbing of vegetation at the site. Pre-construction teleconference calls between the Navy, Tetra Tech, and TolTest were conducted prior to field mobilization activities. The objectives of these calls were to review the responsibilities of each party and to establish lines of communication. TolTest worked directly with the NSWC Crane Public Works Department to mark all underground utilities within the area of IM activities.

2.2.1 Mobilization

Initial mobilization to the site by TolTest personnel was conducted on April 16, 2007. Upon mobilization, general work areas were segregated with yellow caution tape, and appropriate signage was installed. A gravel construction entrance was established to provide access to the work area and to prevent soil from being tracked off site via equipment and trucks. These structures were maintained throughout the project.

A 60-mil low-density polyethylene geomembrane liner was laid out just south of the Building 106 Pond. Four 20,000-gallon Baker tanks for temporary water storage were staged on top of the liner. A temporary soil berm, approximately 3 feet high, was constructed under the plastic around the perimeter of the tank staging area to act as secondary containment. An air stripper water pretreatment system, used to remove VOCs from the pond water as it was transferred from the holding tanks (dirty) to the secondary tanks (clean) was placed within this secondary containment. Electricity for the air stripper was supplied from Building 106.

2.2.2 Clearing

Trees, other vegetation, and a wire fence were removed from the perimeter of the work area. Clearing and grubbing was limited to the areas surrounding the pond. The trees and brush along the southern and western sides of the pond were completely removed, and trees and brush along the northern and eastern sides of the pond were cleared as needed.

2.3 EROSION AND SEDIMENT CONTROLS

Temporary erosion controls consisted of a silt fence located on the eastern side of the pond along the eastern drainage ditch. The silt fence was installed in accordance with Section 4.2 and Figure 4-2 of the SWMU 8 IMWP (Tetra Tech, 2006a). The silt fencing was installed where indicated on Figure 4-1 of the SWMJH 8 IMWP (Tetra Tech, 2006a) prior to any earth-moving activities at the site and was inspected periodically during the remediation project to ensure its continued integrity.

2.4 POND DEWATERING

On May 2, 2007, the EMAC began pumping water from the pond directly into two of the 20,000-gallon temporary water storage tanks (pre-treatment tanks). Suspended sediments in the water were filtered via a filter sock attached to the end of the discharge hose. The water was then discharged from these tanks through the air stripper at approximately 20 gallons per minute to remove VOCs (TCE) and then pumped into the second set of 20,000-gallon water storage tanks (post-treatment tanks). After the pond had been drained and the water pumped through the air stripper, it was determined that only one of the pre-treatment storage tanks was needed on site to handle any additional water accumulation in the pond. Therefore, the second pre-treatment tank was cleaned and subsequently removed from the site.

To ensure the treated water met the discharge criteria set forth in Appendix B.3 of the IMWP (Tetra Tech, 2006a), the EMAC collected several water samples from the post-treatment tanks and analyzed them for VOCs, semi-volatile organic compounds (SVOCs), and metals. Samples were collected on May 8

(PD1065807), May 17 (PD10651707), May 21 (PD1062D52107), July 31 (PD10673107), September 17 (PD106917W), and October 23, 2007 (PD106102307). The water was then transported in the 20,000-gallon tanks to the NSWC Crane Wastewater Treatment Plant located approximately 2.5 miles from the Building 106 Pond. A total of 126,000 gallons of water were treated during the removal action, including initial pond water, groundwater infiltration into the pond, and rain water.

The analytical results from the treated water samples can be found in the TolTest Draft Completion Report provided as Appendix B.

2.5 SOIL EXCAVATION AND WASTE CHARACTERIZATION SAMPLING PROCEDURES

After the water level in the pond had been drawn down to within several inches of the bottom of the pond, the TolTest began excavation activities within the pond. Vertical excavation was conducted to bedrock (approximately 10 feet) on the floor of the pond, and the sidewalls were sloped to provide stable excavation walls. All excavated sediment and soil was stockpiled near the center of the pond, and the water was allowed to gravity drain towards the low end of the pond where the water was then continually pumped from the pond.

A sediment sample (PD106WM5107) was collected by the EMAC from the floor of the pond on May 1, 2007, and submitted to a fixed-base laboratory for waste characterization analysis. The sample was analyzed for VOCs, SVOCs, and metals. Results of the analyses are provided in Appendix B. The stockpiled sediment within the pond had a consistency of a very wet slurry making it too wet to be handled by the excavator. Sawdust was therefore added as a solidifying agent. To evaluate the solidified sediment, an additional waste characterization sample (PD106WM52207) was collected by the EMAC on May 22, 2007, and analyzed for VOCs, SVOCs, metals, polychlorinated biphenyls (PCBs), and pesticides (Appendix B). A third sample (PD1066707) was collected by the TolTest on June 7, 2007, and analyzed for VOCs, SVOCs, metals, PCBs, and pesticides (Appendix B). To resolve the RCRA classification issue for the dewatered Building 106 Pond sediment, IDEM and the Navy agreed upon the collection of composite samples for VOC analysis. These samples were collected by Tetra Tech on July 23, 2007, and the results along with the data validation report are provided in Appendix C. All activities were completed within the original boundary of the pond, and no other material was removed from the pond. In addition, the earthen berm around the perimeter of the pond was raised approximately 3 feet to eliminate surface water runoff into the pond during rain events.

On October 2, 2007, TolTest began removal of the stockpiled sediment from the pond and transport by Beelman Trucking and Guardner Trucking to the Environmental Quality Company's Michigan Disposal

Waste Treatment Plant in Belleville, Michigan, for treatment. From October 2 through 5, 2007, approximately 752 tons of soil and sediment were removed from the pond. All documentation regarding waste disposal is provided in Appendix B.

To provide information on any residual VOC contamination in the pond after excavation activities were completed, Tetra Tech collected an initial series of 13 confirmation soil samples on October 3, 2007, from the excavated walls of the pond. These samples were spaced approximately every 20 feet around perimeter of the pond. A portion of each sample was analyzed in the field utilizing a Color-tec field analysis kit for TCE, and the remainder of the sample was shipped to a fixed-base laboratory for VOC analysis. TolTest utilized the excavator bucket to grab soil from the sample location midway up the wall of the pond and then the sample was collected from the middle of the bucket to ensure that the sample was representative of the remaining soil at a specific location. On October 4, three additional samples were collected along the southern end of the pond excavation in areas where the soil appeared darker than surrounding soil and where field analysis indicated the highest concentrations of TCE. Appendix D contains the fixed-base laboratory confirmation results along with the data validation report.

2.6 CONFIRMATION SAMPLE RESULTS

As indicated in Section 2.5, 13 samples (08SSW001 through 013) were initially collected from the walls of the pond excavation (see Figure 2-1). Based on the Color-tec field analysis, TCE was not detected in seven of those samples (08SSW002, 005, 006, 007, 008, 010, and 012). The remaining six samples had Color-tec field analysis concentrations less than 7.5 ppm. Three additional samples (08SSW014 through 016) were collected along the southern wall of the pond. The field analysis TCE concentration in sample 08SSW014 was 0.3 ppm; greater than 100 ppm in sample 08SSW015; and non-detect in sample 08SSW016. Color-tec field analysis results can be found on the soil sample log sheets located in Appendix E. See Figure 2-1 for all sample locations. Based on the elevated field results at location 08SSW015, the Navy directed the EMAC to remove additional soil (approximately 100 tons) from that area of the pond.

Upon completion of site activities, Tetra Tech collected six additional confirmation samples on November 12, 2007, from the areas used for support during the remedial activities. This included samples from the tank storage area, decontamination area, and gravel construction entrance used by excavation equipment and trucks. The sample results are provided in Appendix D along with the data validation report.

2.7 OFF-SITE DISPOSAL

Off-site transportation of the 852 tons of soil and sediment was completed by Beelman Trucking and Guardner Trucking. The waste was taken to the Environmental Quality Company's Michigan Disposal Waste Treatment Plant for solidification and subsequent treatment. All waste manifests and weigh bills are provided in Appendix B.

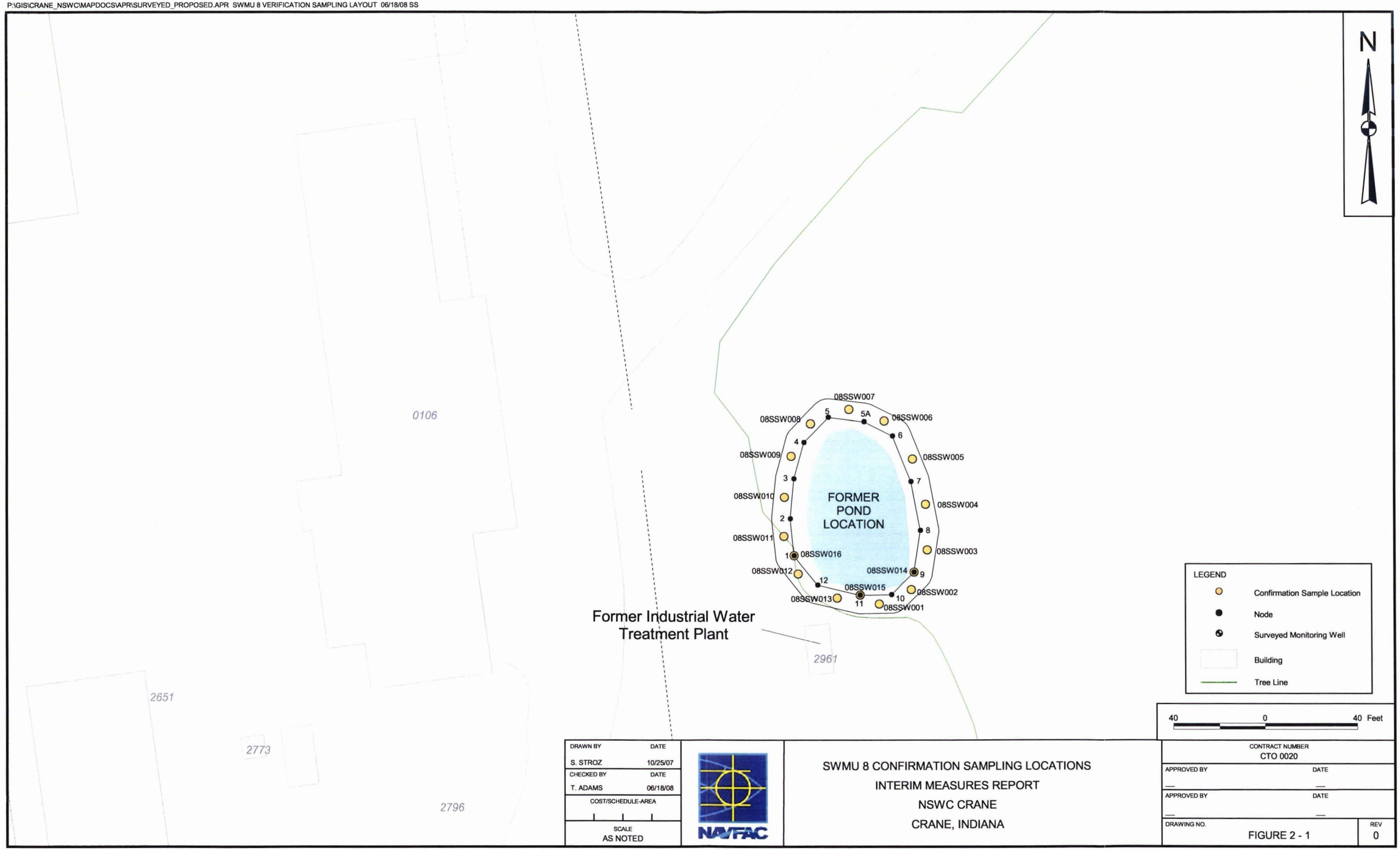
2.8 SITE RESTORATION

Upon completion of remediation activities, the excavation area was backfilled to a grade consistent with the surrounding area and graded with a slight slope towards the eastern drainage ditch for drainage purposes. The backfill soil was obtained from an on-site borrow source and complied with the analytical and physical requirements as described in the IMWP (Tetra Tech, 2006a). To accommodate future use as a parking and storage lot, gravel was placed over the area to a depth of 8 inches. Vegetated areas were restored by grading the site, seeding, and then covering with straw to retain moisture and promote seed germination. Larger stones were placed in the transition area between the former pond and the existing eastern drainage ditch to minimize erosion.

2.9 FIELD DOCUMENTATION

Appendix F contains the daily activity logs.

P:\GIS\CRANE_NSWC\MAPDOCS\APR\SURVEYED_PROPOSED.APR SWMU 8 VERIFICATION SAMPLING LAYOUT 06/18/08 SS



DRAWN BY	DATE
S. STROZ	10/25/07
CHECKED BY	DATE
T. ADAMS	06/18/08
COST/SCHEDULE-AREA	
SCALE AS NOTED	

NAVFAC

SWMU 8 CONFIRMATION SAMPLING LOCATIONS
INTERIM MEASURES REPORT
NSWC CRANE
CRANE, INDIANA

CONTRACT NUMBER CTO 0020	
APPROVED BY	DATE
APPROVED BY	DATE
DRAWING NO. FIGURE 2 - 1	REV 0

3.0 CONCLUSIONS

This IM Report summarizes the work performed at NSWC Crane, SWMU 8 by TolTest (EMAC contractor) and the confirmation sampling conducted by Tetra Tech.

Confirmation samples were collected by Tetra Tech around the perimeter walls of the excavation after the soil and sediment had been removed by TolTest. A portion of each sample was analyzed in the field via a Color-tec analysis kit and the remaining sample was sent to a fixed-base laboratory for VOC analysis. The results of the Color-tec field analysis can be found on the respective field sample log (Appendix E) and the fixed-base laboratory confirmation results are presented in Appendix D.

Upon completion of the interim remediation activities at the Building 106 Pond, six verification samples (08SSC001 through -006) were collected from below the footprints of the materials storage area, water treatment area, and the temporary access areas. The samples were collected to verify that no VOC contamination was spread beyond the identified excavation areas. The samples were shipped to a fixed-base laboratory for VOC analysis. All six samples were reported as non-detects and the analytical results are presented in Appendix D.

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Tetra Tech, 2006c. Resource Conservation and Recovery Act Facility Investigation Report Building 106 Pond (SWMU 8), Naval Surface Warfare Center, Crane, Indiana, March.

Tetra Tech, 2004. Quality Assurance Project Plan for RCRA Facility Investigation at Buildign 106 Pond (SWMU 8), Roads and Grounds Area (SWMU 15), and Environmental Indicator Investigation for SWMU 18 (Load and Fill Area Buildings), SWMU 19 (Pyrotechnic Test Area), and the Old Gun Tub Storage Lot, NSWC Crane, Crane, Indiana, September.

USEPA (United States Environmental Protection Agency), 1986. RCRA Facility Assessment Guidance, OSWER Directive 9502.00-95.

APPENDIX A

SITE PHOTOGRAPHS

Clearing of Vegetation around the Building 106 Pond
(Looking NE)

Clearing of Vegetation around the Building 106 Pond
(Looking NW)

Temporary Staging of Banker Tanks within
Secondary Containment

Excavation Activities

Loading of Waste Material into Trucks

Large Rock placed along Eastern Drainage Channel

General View of the Area after Remediation and Regrading

View of Former Building 106 Pond

APPENDIX B

TOLTEST DRAFT COMPLETION REPORT (CD)

APPENDIX C

FIXED-BASE LABORATORY ANALYTICAL RESULTS FOR WASTE CHARACTERIZATION SAMPLES COLLECTED JULY 23, 2007 (TETRA TECH)

Laucks Testing Laboratories
Preliminary Results
Printed on: 7/26/2007

Method: Purgeable Organic Compounds by GC/MS (8260B)

Client::	Tetra Tech NUS, Inc.	Project:	NSWC Crane VOA	
Sample ID:	08SB01072307	Lab sample ID:	VOA01-001	
Date/time collected:	07/23/2007 08:38	Date/time received:	07/24/2007 09:00	
Date/time prepared:	07/25/2007 08:41	SDG Number:	VOA01	Run Sequence ID: R019935

Preliminary Results

Analyte	DF	Result	Units	Date/time analyzed
Xylenes, Total	1	840	ug/kg	07/25/2007 16:23
Dichlorodifluoromethane	1	120 U		
Chloromethane	1	120 U		
Vinyl chloride	1	120 U		
Bromomethane	1	120 U		
Chloroethane	1	190		
Trichlorofluoromethane	1	120 U		
1,1-Dichloroethene	1	4600		
Acrolein	1	590 U		
Acetone	1	360 J		
Iodomethane	1	590 U		
Carbon disulfide	1	120 U		
Allyl chloride	1	590 U		
Methylene chloride	1	120 U		
Methyl tert-butyl ether	1	120 U		
trans-1,2-Dichloroethene	1	280		
Acrylonitrile	1	590 U		
Vinyl acetate	1	590 U		
1,1-Dichloroethane	1	25000 E		
Chloroprene	1	590 U		
cis-1,2-Dichloroethene	1	350000 E		
2-Butanone	1	590 U		
Methacrylonitrile	1	1200 U		

Laucks does not certify that these results meet NELAC Standards because all NELAC required elements are not included in the facsimile. Pease refer to the full report to review all NELAC required elements.

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Laucks Testing Laboratories
Preliminary Results
Printed on: 7/26/2007

Method:	Purgeable Organic Compounds by GC/MS (8260B)		
Client::	Tetra Tech NUS, Inc.	Project:	NSWC Crane VOA
Sample ID:	08SB01072307	Lab sample ID:	VOA01-001
Date/time collected:	07/23/2007 08:38	Date/time received:	07/24/2007 09:00
Date/time prepared:	07/25/2007 08:41	SDG Number:	VOA01 Run Sequence ID: R019935

Preliminary Results

Analyte	DF	Result	Units	Date/time analyzed
Chloroform	1	120 U	ug/kg	07/25/2007 16:23
1,1,1-Trichloroethane	1	370000 E		
Carbon tetrachloride	1	120 U		
Methyl methacrylate	1	590 U		
Benzene	1	120 U		
1,2-Dichloroethane	1	120 U		
Trichloroethene	1	2000		
1,2-Dichloropropane	1	120 U		
Dibromomethane	1	120 U		
Bromodichloromethane	1	120 U		
cis-1,3-Dichloropropene	1	120 U		
4-Methyl-2-pentanone	1	590 U		
Toluene	1	4200		
Ethyl methacrylate	1	590 U		
trans-1,3-Dichloropropene	1	120 U		
1,1,2-Trichloroethane	1	120 U		
Tetrachloroethene	1	310		
2-Hexanone	1	590 U		
Dibromochloromethane	1	120 U		
1,2-Dibromoethane	1	120 U		
Chlorobenzene	1	120 U		
Ethylbenzene	1	160		
1,1,1,2-Tetrachloroethane	1	120 U		

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Laucks Testing Laboratories
Preliminary Results
Printed on: 7/26/2007

Method: Purgeable Organic Compounds by GC/MS (8260B)

Client::	Tetra Tech NUS, Inc.	Project:	NSWC Crane VOA	
Sample ID:	08SB01072307	Lab sample ID:	VOA01-001	
Date/time collected:	07/23/2007 08:38	Date/time received:	07/24/2007 09:00	
Date/time prepared:	07/25/2007 08:41	SDG Number:	VOA01	Run Sequence ID: R019935

Preliminary Results

Analyte	DF	Result	Units	Date/time analyzed
Styrene	1	120 U	ug/kg	07/25/2007 16:23
Bromoform	1	120 U		
1,1,2,2-Tetrachloroethane	1	120 U		
trans-1,4-Dichloro-2-butene	1	590 U		
1,2,3-Trichloropropane	1	120 U		
1,2-Dibromo-3-chloropropane	1	120 U		
Dibromofluoromethane	1	112.7	%	
1,2-Dichloroethane-d4	1	101.7		
Toluene-d8	1	96.2		
4-Bromofluorobenzene	1	100.7		

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Laucks Testing Laboratories
Preliminary Results
Printed on: 7/26/2007

Method: Purgeable Organic Compounds by GC/MS (8260B)

Client::	Tetra Tech NUS, Inc.	Project:	NSWC Crane VOA
Sample ID:	08SB01072307-DL	Lab sample ID:	VOA01-001DL
Date/time collected:	07/23/2007 08:38	Date/time received:	07/24/2007 09:00
Date/time prepared:	07/25/2007 08:41	SDG Number:	VOA01 Run Sequence ID: R019935

Preliminary Results

Analyte	DF	Result	Units	Date/time analyzed
Xylenes, Total	50	5900 U	ug/kg	07/25/2007 18:33
Dichlorodifluoromethane	50	5900 U		
Chloromethane	50	5900 U		
Vinyl chloride	50	5900 U		
Bromomethane	50	5900 U		
Chloroethane	50	5900 U		
Trichlorofluoromethane	50	5900 U		
1,1-Dichloroethene	50	5900 U		
Acrolein	50	29000 U		
Acetone	50	29000 U		
Iodomethane	50	29000 U		
Carbon disulfide	50	5900 U		
Allyl chloride	50	29000 U		
Methylene chloride	50	5900 U		
Methyl tert-butyl ether	50	5900 U		
trans-1,2-Dichloroethene	50	5900 U		
Acrylonitrile	50	29000 U		
Vinyl acetate	50	29000 U		
1,1-Dichloroethane	50	21000		
Chloroprene	50	29000 U		
cis-1,2-Dichloroethene	50	290000		
2-Butanone	50	29000 U		
Methacrylonitrile	50	59000 U		

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Laucks Testing Laboratories
Preliminary Results
Printed on: 7/26/2007

Method: Purgeable Organic Compounds by GC/MS (8260B)

Client::	Tetra Tech NUS, Inc.	Project:	NSWC Crane VOA
Sample ID:	08SB01072307-DL	Lab sample ID:	VOA01-001DL
Date/time collected:	07/23/2007 08:38	Date/time received:	07/24/2007 09:00
Date/time prepared:	07/25/2007 08:41	SDG Number:	VOA01 Run Sequence ID: R019935

Preliminary Results

Analyte	DF	Result	Units	Date/time analyzed
Chloroform	50	5900 U	ug/kg	07/25/2007 18:33
1,1,1-Trichloroethane	50	270000		
Carbon tetrachloride	50	5900 U		
Methyl methacrylate	50	29000 U		
Benzene	50	5900 U		
1,2-Dichloroethane	50	5900 U		
Trichloroethene	50	5900 U		
1,2-Dichloropropane	50	5900 U		
Dibromomethane	50	5900 U		
Bromodichloromethane	50	5900 U		
cis-1,3-Dichloropropene	50	5900 U		
4-Methyl-2-pentanone	50	29000 U		
Toluene	50	3600 J		
Ethyl methacrylate	50	29000 U		
trans-1,3-Dichloropropene	50	5900 U		
1,1,2-Trichloroethane	50	5900 U		
Tetrachloroethene	50	5900 U		
2-Hexanone	50	29000 U		
Dibromochloromethane	50	5900 U		
1,2-Dibromoethane	50	5900 U		
Chlorobenzene	50	5900 U		
Ethylbenzene	50	5900 U		
1,1,1,2-Tetrachloroethane	50	5900 U		

Laucks does not certify that these results meet NELAC Standards because all NELAC required elements are not included in the facsimile. Pease refer to the full report to review all NELAC required elements.

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Laucks Testing Laboratories
Preliminary Results
Printed on: 7/26/2007

Method:	Purgeable Organic Compounds by GC/MS (8260B)		
Client::	Tetra Tech NUS, Inc.	Project:	NSWC Crane VOA
Sample ID:	08SB01072307-DL	Lab sample ID:	VOA01-001DL
Date/time collected:	07/23/2007 08:38	Date/time received:	07/24/2007 09:00
Date/time prepared:	07/25/2007 08:41	SDG Number:	VOA01 Run Sequence ID: R019935

Preliminary Results

Analyte	DF	Result	Units	Date/time analyzed
Styrene	50	5900 U	ug/kg	07/25/2007 18:33
Bromoform	50	5900 U		
1,1,2,2-Tetrachloroethane	50	5900 U		
trans-1,4-Dichloro-2-butene	50	29000 U		
1,2,3-Trichloropropane	50	5900 U		
1,2-Dibromo-3-chloropropane	50	5900 U		
Dibromofluoromethane	50	102.5	%	
1,2-Dichloroethane-d4	50	99.7		
Toluene-d8	50	97.8		
4-Bromofluorobenzene	50	99.7		

Laucks does not certify that these results meet NELAC Standards because all NELAC required elements are not included in the facsimile. Pease refer to the full report to review all NELAC required elements.

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Laucks Testing Laboratories
Preliminary Results
Printed on: 7/26/2007

Method: Purgeable Organic Compounds by GC/MS (8260B)

Client::	Tetra Tech NUS, Inc.	Project:	NSWC Crane VOA
Sample ID:	08SB02072307	Lab sample ID:	VOA01-002
Date/time collected:	07/23/2007 09:41	Date/time received:	07/24/2007 09:00
Date/time prepared:	07/25/2007 08:41	SDG Number:	VOA01 Run Sequence ID: R019935

Preliminary Results

Analyte	DF	Result	Units	Date/time analyzed
Xylenes, Total	1	550	ug/kg	07/25/2007 16:48
Dichlorodifluoromethane	1	130 U		
Chloromethane	1	130 U		
Vinyl chloride	1	130 U		
Bromomethane	1	130 U		
Chloroethane	1	150		
Trichlorofluoromethane	1	130 U		
1,1-Dichloroethene	1	3900		
Acrolein	1	660 U		
Acetone	1	190 J		
Iodomethane	1	660 U		
Carbon disulfide	1	130 U		
Allyl chloride	1	660 U		
Methylene chloride	1	130 U		
Methyl tert-butyl ether	1	130 U		
trans-1,2-Dichloroethene	1	240		
Acrylonitrile	1	660 U		
Vinyl acetate	1	660 U		
1,1-Dichloroethane	1	21000		
Chloroprene	1	660 U		
cis-1,2-Dichloroethene	1	240000 E		
2-Butanone	1	660 U		
Methacrylonitrile	1	1300 U		

Laucks does not certify that these results meet NELAC Standards because all NELAC required elements are not included in the facsimile. Pease refer to the full report to review all NELAC required elements.

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Laucks Testing Laboratories
Preliminary Results
Printed on: 7/26/2007

Method: Purgeable Organic Compounds by GC/MS (8260B)

Client::	Tetra Tech NUS, Inc.	Project:	NSWC Crane VOA
Sample ID:	08SB02072307	Lab sample ID:	VOA01-002
Date/time collected:	07/23/2007 09:41	Date/time received:	07/24/2007 09:00
Date/time prepared:	07/25/2007 08:41	SDG Number:	VOA01 Run Sequence ID: R019935

Preliminary Results

Analyte	DF	Result	Units	Date/time analyzed
Chloroform	1	130 U	ug/kg	07/25/2007 16:48
1,1,1-Trichloroethane	1	340000 E		
Carbon tetrachloride	1	130 U		
Methyl methacrylate	1	660 U		
Benzene	1	130 U		
1,2-Dichloroethane	1	130 U		
Trichloroethene	1	3700		
1,2-Dichloropropane	1	130 U		
Dibromomethane	1	130 U		
Bromodichloromethane	1	130 U		
cis-1,3-Dichloropropene	1	130 U		
4-Methyl-2-pentanone	1	660 U		
Toluene	1	3500		
Ethyl methacrylate	1	660 U		
trans-1,3-Dichloropropene	1	130 U		
1,1,2-Trichloroethane	1	130 U		
Tetrachloroethene	1	380		
2-Hexanone	1	660 U		
Dibromochloromethane	1	130 U		
1,2-Dibromoethane	1	130 U		
Chlorobenzene	1	130 U		
Ethylbenzene	1	110 J		
1,1,1,2-Tetrachloroethane	1	130 U		

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Laucks Testing Laboratories
Preliminary Results
Printed on: 7/26/2007

Method: Purgeable Organic Compounds by GC/MS (8260B)

Client::	Tetra Tech NUS, Inc.	Project:	NSWC Crane VOA
Sample ID:	08SB02072307	Lab sample ID:	VOA01-002
Date/time collected:	07/23/2007 09:41	Date/time received:	07/24/2007 09:00
Date/time prepared:	07/25/2007 08:41	SDG Number:	VOA01 Run Sequence ID: R019935

Preliminary Results

Analyte	DF	Result	Units	Date/time analyzed
Styrene	1	130 U	ug/kg	07/25/2007 16:48
Bromoform	1	130 U		
1,1,2,2-Tetrachloroethane	1	130 U		
trans-1,4-Dichloro-2-butene	1	660 U		
1,2,3-Trichloropropane	1	130 U		
1,2-Dibromo-3-chloropropane	1	130 U		
Dibromofluoromethane	1	110.8	%	
1,2-Dichloroethane-d4	1	101.6		
Toluene-d8	1	96.8		
4-Bromofluorobenzene	1	101		

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Laucks Testing Laboratories
Preliminary Results
Printed on: 7/26/2007

Method: Purgeable Organic Compounds by GC/MS (8260B)

Client::	Tetra Tech NUS, Inc.	Project:	NSWC Crane VOA
Sample ID:	08SB02072307-DL	Lab sample ID:	VOA01-002DL
Date/time collected:	07/23/2007 09:41	Date/time received:	07/24/2007 09:00
Date/time prepared:	07/25/2007 08:41	SDG Number:	VOA01 Run Sequence ID: R019935

Preliminary Results

Analyte	DF	Result	Units	Date/time analyzed
Xylenes, Total	50	6600 U	ug/kg	07/25/2007 18:58
Dichlorodifluoromethane	50	6600 U		
Chloromethane	50	6600 U		
Vinyl chloride	50	6600 U		
Bromomethane	50	6600 U		
Chloroethane	50	6600 U		
Trichlorofluoromethane	50	6600 U		
1,1-Dichloroethene	50	6600 U		
Acrolein	50	33000 U		
Acetone	50	33000 U		
Iodomethane	50	33000 U		
Carbon disulfide	50	6600 U		
Allyl chloride	50	33000 U		
Methylene chloride	50	6600 U		
Methyl tert-butyl ether	50	6600 U		
trans-1,2-Dichloroethene	50	6600 U		
Acrylonitrile	50	33000 U		
Vinyl acetate	50	33000 U		
1,1-Dichloroethane	50	18000		
Chloroprene	50	33000 U		
cis-1,2-Dichloroethene	50	200000		
2-Butanone	50	33000 U		
Methacrylonitrile	50	66000 U		

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Laucks Testing Laboratories
Preliminary Results
Printed on: 7/26/2007

Method: Purgeable Organic Compounds by GC/MS (8260B)

Client::	Tetra Tech NUS, Inc.	Project:	NSWC Crane VOA
Sample ID:	08SB02072307-DL	Lab sample ID:	VOA01-002DL
Date/time collected:	07/23/2007 09:41	Date/time received:	07/24/2007 09:00
Date/time prepared:	07/25/2007 08:41	SDG Number:	VOA01 Run Sequence ID: R019935

Preliminary Results

Analyte	DF	Result	Units	Date/time analyzed
Chloroform	50	6600 U	ug/kg	07/25/2007 18:58
1,1,1-Trichloroethane	50	260000		
Carbon tetrachloride	50	6600 U		
Methyl methacrylate	50	33000 U		
Benzene	50	6600 U		
1,2-Dichloroethane	50	6600 U		
Trichloroethene	50	6600 U		
1,2-Dichloropropane	50	6600 U		
Dibromomethane	50	6600 U		
Bromodichloromethane	50	6600 U		
cis-1,3-Dichloropropene	50	6600 U		
4-Methyl-2-pentanone	50	33000 U		
Toluene	50	6600 U		
Ethyl methacrylate	50	33000 U		
trans-1,3-Dichloropropene	50	6600 U		
1,1,2-Trichloroethane	50	6600 U		
Tetrachloroethene	50	6600 U		
2-Hexanone	50	33000 U		
Dibromochloromethane	50	6600 U		
1,2-Dibromoethane	50	6600 U		
Chlorobenzene	50	6600 U		
Ethylbenzene	50	6600 U		
1,1,1,2-Tetrachloroethane	50	6600 U		

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Laucks Testing Laboratories
Preliminary Results
Printed on: 7/26/2007

Method: Purgeable Organic Compounds by GC/MS (8260B)

Client::	Tetra Tech NUS, Inc.	Project:	NSWC Crane VOA
Sample ID:	08SB02072307-DL	Lab sample ID:	VOA01-002DL
Date/time collected:	07/23/2007 09:41	Date/time received:	07/24/2007 09:00
Date/time prepared:	07/25/2007 08:41	SDG Number:	VOA01 Run Sequence ID: R019935

Preliminary Results

Analyte	DF	Result	Units	Date/time analyzed
Styrene	50	6600 U	ug/kg	07/25/2007 18:58
Bromoform	50	6600 U		
1,1,2,2-Tetrachloroethane	50	6600 U		
trans-1,4-Dichloro-2-butene	50	33000 U		
1,2,3-Trichloropropane	50	6600 U		
1,2-Dibromo-3-chloropropane	50	6600 U		
Dibromofluoromethane	50	102.5	%	
1,2-Dichloroethane-d4	50	101.6		
Toluene-d8	50	98.2		
4-Bromofluorobenzene	50	99.1		

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Laucks Testing Laboratories
Preliminary Results
Printed on: 7/26/2007

Method: Purgeable Organic Compounds by GC/MS (8260B)

Client::	Tetra Tech NUS, Inc.	Project:	NSWC Crane VOA
Sample ID:	08SB03072307	Lab sample ID:	VOA01-003
Date/time collected:	07/23/2007 10:51	Date/time received:	07/24/2007 09:00
Date/time prepared:	07/25/2007 08:41	SDG Number:	VOA01 Run Sequence ID: R019935

Preliminary Results

Analyte	DF	Result	Units	Date/time analyzed
Xylenes, Total	1	370	ug/kg	07/25/2007 17:19
Dichlorodifluoromethane	1	99 U		
Chloromethane	1	99 U		
Vinyl chloride	1	10000		
Bromomethane	1	99 U		
Chloroethane	1	180		
Trichlorofluoromethane	1	99 U		
1,1-Dichloroethene	1	910		
Acrolein	1	490 U		
Acetone	1	170 J		
Iodomethane	1	490 U		
Carbon disulfide	1	99 U		
Allyl chloride	1	490 U		
Methylene chloride	1	99 U		
Methyl tert-butyl ether	1	99 U		
trans-1,2-Dichloroethene	1	230		
Acrylonitrile	1	490 U		
Vinyl acetate	1	490 U		
1,1-Dichloroethane	1	43000 E		
Chloroprene	1	490 U		
cis-1,2-Dichloroethene	1	120000 E		
2-Butanone	1	490 U		
Methacrylonitrile	1	990 U		

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Laucks Testing Laboratories
Preliminary Results
Printed on: 7/26/2007

Method: Purgeable Organic Compounds by GC/MS (8260B)

Client::	Tetra Tech NUS, Inc.	Project:	NSWC Crane VOA
Sample ID:	08SB03072307	Lab sample ID:	VOA01-003
Date/time collected:	07/23/2007 10:51	Date/time received:	07/24/2007 09:00
Date/time prepared:	07/25/2007 08:41	SDG Number:	VOA01 Run Sequence ID: R019935

Preliminary Results

Analyte	DF	Result	Units	Date/time analyzed
Chloroform	1	99 U	ug/kg	07/25/2007 17:19
1,1,1-Trichloroethane	1	90000 E		
Carbon tetrachloride	1	99 U		
Methyl methacrylate	1	490 U		
Benzene	1	99 U		
1,2-Dichloroethane	1	99 U		
Trichloroethene	1	490		
1,2-Dichloropropane	1	99 U		
Dibromomethane	1	99 U		
Bromodichloromethane	1	99 U		
cis-1,3-Dichloropropene	1	99 U		
4-Methyl-2-pentanone	1	490 U		
Toluene	1	1800		
Ethyl methacrylate	1	490 U		
trans-1,3-Dichloropropene	1	99 U		
1,1,2-Trichloroethane	1	99 U		
Tetrachloroethene	1	99 U		
2-Hexanone	1	490 U		
Dibromochloromethane	1	99 U		
1,2-Dibromoethane	1	99 U		
Chlorobenzene	1	99 U		
Ethylbenzene	1	74 J		
1,1,1,2-Tetrachloroethane	1	99 U		

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Laucks Testing Laboratories
Preliminary Results
Printed on: 7/26/2007

Method: Purgeable Organic Compounds by GC/MS (8260B)

Client::	Tetra Tech NUS, Inc.	Project:	NSWC Crane VOA	
Sample ID:	08SB03072307	Lab sample ID:	VOA01-003	
Date/time collected:	07/23/2007 10:51	Date/time received:	07/24/2007 09:00	
Date/time prepared:	07/25/2007 08:41	SDG Number:	VOA01	Run Sequence ID: R019935

Preliminary Results

Analyte	DF	Result	Units	Date/time analyzed
Styrene	1	99 U	ug/kg	07/25/2007 17:19
Bromoform	1	99 U		
1,1,2,2-Tetrachloroethane	1	99 U		
trans-1,4-Dichloro-2-butene	1	490 U		
1,2,3-Trichloropropane	1	99 U		
1,2-Dibromo-3-chloropropane	1	99 U		
Dibromofluoromethane	1	108.5	%	
1,2-Dichloroethane-d4	1	102.3		
Toluene-d8	1	96.3		
4-Bromofluorobenzene	1	101.4		

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Laucks Testing Laboratories
Preliminary Results
Printed on: 7/26/2007

Method: Purgeable Organic Compounds by GC/MS (8260B)

Client::	Tetra Tech NUS, Inc.	Project:	NSWC Crane VOA
Sample ID:	08SB03072307-DL	Lab sample ID:	VOA01-003DL
Date/time collected:	07/23/2007 10:51	Date/time received:	07/24/2007 09:00
Date/time prepared:	07/25/2007 08:41	SDG Number:	VOA01 Run Sequence ID: R019935

Preliminary Results

Analyte	DF	Result	Units	Date/time analyzed
Xylenes, Total	50	4900 U	ug/kg	07/25/2007 19:23
Dichlorodifluoromethane	50	4900 U		
Chloromethane	50	4900 U		
Vinyl chloride	50	7000		
Bromomethane	50	4900 U		
Chloroethane	50	4900 U		
Trichlorofluoromethane	50	4900 U		
1,1-Dichloroethene	50	4900 U		
Acrolein	50	25000 U		
Acetone	50	25000 U		
Iodomethane	50	25000 U		
Carbon disulfide	50	4900 U		
Allyl chloride	50	25000 U		
Methylene chloride	50	4900 U		
Methyl tert-butyl ether	50	4900 U		
trans-1,2-Dichloroethene	50	4900 U		
Acrylonitrile	50	25000 U		
Vinyl acetate	50	25000 U		
1,1-Dichloroethane	50	36000		
Chloroprene	50	25000 U		
cis-1,2-Dichloroethene	50	100000		
2-Butanone	50	25000 U		
Methacrylonitrile	50	49000 U		

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Laucks Testing Laboratories
Preliminary Results
Printed on: 7/26/2007

Method: Purgeable Organic Compounds by GC/MS (8260B)

Client::	Tetra Tech NUS, Inc.	Project:	NSWC Crane VOA
Sample ID:	08SB03072307-DL	Lab sample ID:	VOA01-003DL
Date/time collected:	07/23/2007 10:51	Date/time received:	07/24/2007 09:00
Date/time prepared:	07/25/2007 08:41	SDG Number:	VOA01 Run Sequence ID: R019935

Preliminary Results

Analyte	DF	Result	Units	Date/time analyzed
Chloroform	50	4900 U	ug/kg	07/25/2007 19:23
1,1,1-Trichloroethane	50	68000		
Carbon tetrachloride	50	4900 U		
Methyl methacrylate	50	25000 U		
Benzene	50	4900 U		
1,2-Dichloroethane	50	4900 U		
Trichloroethene	50	4900 U		
1,2-Dichloropropane	50	4900 U		
Dibromomethane	50	4900 U		
Bromodichloromethane	50	4900 U		
cis-1,3-Dichloropropene	50	4900 U		
4-Methyl-2-pentanone	50	25000 U		
Toluene	50	4900 U		
Ethyl methacrylate	50	25000 U		
trans-1,3-Dichloropropene	50	4900 U		
1,1,2-Trichloroethane	50	4900 U		
Tetrachloroethene	50	4900 U		
2-Hexanone	50	25000 U		
Dibromochloromethane	50	4900 U		
1,2-Dibromoethane	50	4900 U		
Chlorobenzene	50	4900 U		
Ethylbenzene	50	4900 U		
1,1,1,2-Tetrachloroethane	50	4900 U		

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Laucks Testing Laboratories
Preliminary Results
Printed on: 7/26/2007

Method: Purgeable Organic Compounds by GC/MS (8260B)

Client::	Tetra Tech NUS, Inc.	Project:	NSWC Crane VOA
Sample ID:	08SB03072307-DL	Lab sample ID:	VOA01-003DL
Date/time collected:	07/23/2007 10:51	Date/time received:	07/24/2007 09:00
Date/time prepared:	07/25/2007 08:41	SDG Number:	VOA01 Run Sequence ID: R019935

Preliminary Results

Analyte	DF	Result	Units	Date/time analyzed
Styrene	50	4900 U	ug/kg	07/25/2007 19:23
Bromoform	50	4900 U		
1,1,2,2-Tetrachloroethane	50	4900 U		
trans-1,4-Dichloro-2-butene	50	25000 U		
1,2,3-Trichloropropane	50	4900 U		
1,2-Dibromo-3-chloropropane	50	4900 U		
Dibromofluoromethane	50	101.5	%	
1,2-Dichloroethane-d4	50	102.1		
Toluene-d8	50	98.1		
4-Bromofluorobenzene	50	100.8		

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Laucks Testing Laboratories
Preliminary Results
Printed on: 7/26/2007

Method:	Purgeable Organic Compounds by GC/MS (8260B)			
Client::	Tetra Tech NUS, Inc.	Project:	NSWC Crane VOA	
Sample ID:	08SB04072307	Lab sample ID:	VOA01-004	
Date/time collected:	07/23/2007 11:50	Date/time received:	07/24/2007 09:00	
Date/time prepared:	07/25/2007 08:41	SDG Number:	VOA01	Run Sequence ID: R019935

Preliminary Results

Analyte	DF	Result	Units	Date/time analyzed
Xylenes, Total	1	600	ug/kg	07/25/2007 17:44
Dichlorodifluoromethane	1	120 U		
Chloromethane	1	120 U		
Vinyl chloride	1	410		
Bromomethane	1	120 U		
Chloroethane	1	750		
Trichlorofluoromethane	1	120 U		
1,1-Dichloroethene	1	5100		
Acrolein	1	590 U		
Acetone	1	530 J		
Iodomethane	1	590 U		
Carbon disulfide	1	120 U		
Allyl chloride	1	590 U		
Methylene chloride	1	120 U		
Methyl tert-butyl ether	1	120 U		
trans-1,2-Dichloroethene	1	490		
Acrylonitrile	1	590 U		
Vinyl acetate	1	590 U		
1,1-Dichloroethane	1	32000 E		
Chloroprene	1	590 U		
cis-1,2-Dichloroethene	1	460000 E		
2-Butanone	1	590 U		
Methacrylonitrile	1	1200 U		

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Laucks Testing Laboratories
Preliminary Results
Printed on: 7/26/2007

Method: Purgeable Organic Compounds by GC/MS (8260B)

Client::	Tetra Tech NUS, Inc.	Project:	NSWC Crane VOA
Sample ID:	08SB04072307	Lab sample ID:	VOA01-004
Date/time collected:	07/23/2007 11:50	Date/time received:	07/24/2007 09:00
Date/time prepared:	07/25/2007 08:41	SDG Number:	VOA01 Run Sequence ID: R019935

Preliminary Results

Analyte	DF	Result	Units	Date/time analyzed
Chloroform	1	120 U	ug/kg	07/25/2007 17:44
1,1,1-Trichloroethane	1	370000 E		
Carbon tetrachloride	1	120 U		
Methyl methacrylate	1	590 U		
Benzene	1	120 U		
1,2-Dichloroethane	1	120 U		
Trichloroethene	1	940		
1,2-Dichloropropane	1	120 U		
Dibromomethane	1	120 U		
Bromodichloromethane	1	120 U		
cis-1,3-Dichloropropene	1	120 U		
4-Methyl-2-pentanone	1	590 U		
Toluene	1	2400		
Ethyl methacrylate	1	590 U		
trans-1,3-Dichloropropene	1	120 U		
1,1,2-Trichloroethane	1	120 U		
Tetrachloroethene	1	260		
2-Hexanone	1	590 U		
Dibromochloromethane	1	120 U		
1,2-Dibromoethane	1	120 U		
Chlorobenzene	1	120 U		
Ethylbenzene	1	110 J		
1,1,1,2-Tetrachloroethane	1	120 U		

Laucks does not certify that these results meet NELAC Standards because all NELAC required elements are not included in the facsimile. Pease refer to the full report to review all NELAC required elements.

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Laucks Testing Laboratories
Preliminary Results
Printed on: 7/26/2007

Method: Purgeable Organic Compounds by GC/MS (8260B)

Client::	Tetra Tech NUS, Inc.	Project:	NSWC Crane VOA
Sample ID:	08SB04072307	Lab sample ID:	VOA01-004
Date/time collected:	07/23/2007 11:50	Date/time received:	07/24/2007 09:00
Date/time prepared:	07/25/2007 08:41	SDG Number:	VOA01 Run Sequence ID: R019935

Preliminary Results

Analyte	DF	Result	Units	Date/time analyzed
Styrene	1	120 U	ug/kg	07/25/2007 17:44
Bromoform	1	120 U		
1,1,2,2-Tetrachloroethane	1	120 U		
trans-1,4-Dichloro-2-butene	1	590 U		
1,2,3-Trichloropropane	1	120 U		
1,2-Dibromo-3-chloropropane	1	120 U		
Dibromofluoromethane	1	112.1	%	
1,2-Dichloroethane-d4	1	99.4		
Toluene-d8	1	97.2		
4-Bromofluorobenzene	1	102.1		

Laucks does not certify that these results meet NELAC Standards because all NELAC required elements are not included in the facsimile. Pease refer to the full report to review all NELAC required elements.

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Laucks Testing Laboratories
Preliminary Results
Printed on: 7/26/2007

Method: Purgeable Organic Compounds by GC/MS (8260B)

Client::	Tetra Tech NUS, Inc.	Project:	NSWC Crane VOA
Sample ID:	08SB04072307-DL	Lab sample ID:	VOA01-004DL
Date/time collected:	07/23/2007 11:50	Date/time received:	07/24/2007 09:00
Date/time prepared:	07/26/2007 09:17	SDG Number:	VOA01 Run Sequence ID: R019944

Preliminary Results

Analyte	DF	Result	Units	Date/time analyzed
Xylenes, Total	50	5900 U	ug/kg	07/26/2007 13:22
Dichlorodifluoromethane	50	5900 U		
Chloromethane	50	5900 U		
Vinyl chloride	50	5900 U		
Bromomethane	50	5900 U		
Chloroethane	50	5900 U		
Trichlorofluoromethane	50	5900 U		
1,1-Dichloroethene	50	5900 U		
Acrolein	50	29000 U		
Acetone	50	29000 U		
Iodomethane	50	29000 U		
Carbon disulfide	50	5900 U		
Allyl chloride	50	29000 U		
Methylene chloride	50	5900 U		
Methyl tert-butyl ether	50	5900 U		
trans-1,2-Dichloroethene	50	5900 U		
Acrylonitrile	50	29000 U		
Vinyl acetate	50	29000 U		
1,1-Dichloroethane	50	27000		
Chloroprene	50	29000 U		
cis-1,2-Dichloroethene	50	360000		
2-Butanone	50	29000 U		
Methacrylonitrile	50	59000 U		

Laucks does not certify that these results meet NELAC Standards because all NELAC required elements are not included in the facsimile. Pease refer to the full report to review all NELAC required elements.

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Laucks Testing Laboratories
Preliminary Results
Printed on: 7/26/2007

Method: Purgeable Organic Compounds by GC/MS (8260B)

Client::	Tetra Tech NUS, Inc.	Project:	NSWC Crane VOA
Sample ID:	08SB04072307-DL	Lab sample ID:	VOA01-004DL
Date/time collected:	07/23/2007 11:50	Date/time received:	07/24/2007 09:00
Date/time prepared:	07/26/2007 09:17	SDG Number:	VOA01 Run Sequence ID: R019944

Preliminary Results

Analyte	DF	Result	Units	Date/time analyzed
Chloroform	50	5900 U	ug/kg	07/26/2007 13:22
1,1,1-Trichloroethane	50	280000		
Carbon tetrachloride	50	5900 U		
Methyl methacrylate	50	29000 U		
Benzene	50	5900 U		
1,2-Dichloroethane	50	5900 U		
Trichloroethene	50	5900 U		
1,2-Dichloropropane	50	5900 U		
ibromomethane	50	5900 U		
Bromodichloromethane	50	5900 U		
cis-1,3-Dichloropropene	50	5900 U		
4-Methyl-2-pentanone	50	29000 U		
Toluene	50	5900 U		
Ethyl methacrylate	50	29000 U		
trans-1,3-Dichloropropene	50	5900 U		
1,1,2-Trichloroethane	50	5900 U		
Tetrachloroethene	50	5900 U		
2-Hexanone	50	29000 U		
Dibromochloromethane	50	5900 U		
1,2-Dibromoethane	50	5900 U		
Chlorobenzene	50	5900 U		
Ethylbenzene	50	5900 U		
1,1,1,2-Tetrachloroethane	50	5900 U		

Laucks does not certify that these results meet NELAC Standards because all NELAC required elements are not included in the facsimile. Pease refer to the full report to review all NELAC required elements.

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Laucks Testing Laboratories
Preliminary Results
Printed on: 7/26/2007

Method: Purgeable Organic Compounds by GC/MS (8260B)

Client::	Tetra Tech NUS, Inc.	Project:	NSWC Crane VOA
Sample ID:	08SB04072307-DL	Lab sample ID:	VOA01-004DL
Date/time collected:	07/23/2007 11:50	Date/time received:	07/24/2007 09:00
Date/time prepared:	07/26/2007 09:17	SDG Number:	VOA01 Run Sequence ID: R019944

Preliminary Results

Analyte	DF	Result	Units	Date/time analyzed
Styrene	50	5900 U	ug/kg	07/26/2007 13:22
Bromoform	50	5900 U		
1,1,2,2-Tetrachloroethane	50	5900 U		
trans-1,4-Dichloro-2-butene	50	29000 U		
1,2,3-Trichloropropane	50	5900 U		
1,2-Dibromo-3-chloropropane	50	5900 U		
Dibromofluoromethane	50	102.8	%	
1,2-Dichloroethane-d4	50	100.3		
Toluene-d8	50	97.8		
4-Bromofluorobenzene	50	102.4		

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Laucks Testing Laboratories
Preliminary Results
Printed on: 7/26/2007

Method: Purgeable Organic Compounds by GC/MS (8260B)

Client::	Tetra Tech NUS, Inc.	Project:	NSWC Crane VOA
Sample ID:	08SB05072307	Lab sample ID:	VOA01-005
Date/time collected:	07/23/2007 12:30	Date/time received:	07/24/2007 09:00
Date/time prepared:	07/25/2007 08:41	SDG Number:	VOA01 Run Sequence ID: R019935

Preliminary Results

Analyte	DF	Result	Units	Date/time analyzed
Xylenes, Total	1	180	ug/kg	07/25/2007 18:08
Dichlorodifluoromethane	1	87 U		
Chloromethane	1	87 U		
Vinyl chloride	1	150		
Bromomethane	1	87 U		
Chloroethane	1	340		
Trichlorofluoromethane	1	87 U		
1,1-Dichloroethene	1	1000		
Acrolein	1	440 U		
Acetone	1	200 J		
Iodomethane	1	440 U		
Carbon disulfide	1	87 U		
Allyl chloride	1	440 U		
Methylene chloride	1	87 U		
Methyl tert-butyl ether	1	87 U		
trans-1,2-Dichloroethene	1	180		
Acrylonitrile	1	440 U		
Vinyl acetate	1	440 U		
1,1-Dichloroethane	1	11000		
Chloroprene	1	440 U		
cis-1,2-Dichloroethene	1	150000 E		
2-Butanone	1	440 U		
Methacrylonitrile	1	870 U		

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Laucks Testing Laboratories
Preliminary Results
Printed on: 7/26/2007

Method: Purgeable Organic Compounds by GC/MS (8260B)

Client::	Tetra Tech NUS, Inc.	Project:	NSWC Crane VOA
Sample ID:	08SB05072307	Lab sample ID:	VOA01-005
Date/time collected:	07/23/2007 12:30	Date/time received:	07/24/2007 09:00
Date/time prepared:	07/25/2007 08:41	SDG Number:	VOA01 Run Sequence ID: R019935

Preliminary Results

Analyte	DF	Result	Units	Date/time analyzed
Chloroform	1	87 U	ug/kg	07/25/2007 18:08
1,1,1-Trichloroethane	1	94000 E		
Carbon tetrachloride	1	87 U		
Methyl methacrylate	1	440 U		
Benzene	1	87 U		
1,2-Dichloroethane	1	87 U		
Trichloroethene	1	250		
1,2-Dichloropropane	1	87 U		
Dibromomethane	1	87 U		
Bromodichloromethane	1	87 U		
cis-1,3-Dichloropropene	1	87 U		
4-Methyl-2-pentanone	1	440 U		
Toluene	1	640		
Ethyl methacrylate	1	440 U		
trans-1,3-Dichloropropene	1	87 U		
1,1,2-Trichloroethane	1	87 U		
Tetrachloroethene	1	64 J		
2-Hexanone	1	440 U		
Dibromochloromethane	1	87 U		
1,2-Dibromoethane	1	87 U		
Chlorobenzene	1	87 U		
Ethylbenzene	1	87 U		
1,1,1,2-Tetrachloroethane	1	87 U		

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Laucks Testing Laboratories
Preliminary Results
Printed on: 7/26/2007

Method: Purgeable Organic Compounds by GC/MS (8260B)

Client::	Tetra Tech NUS, Inc.	Project:	NSWC Crane VOA
Sample ID:	08SB05072307	Lab sample ID:	VOA01-005
Date/time collected:	07/23/2007 12:30	Date/time received:	07/24/2007 09:00
Date/time prepared:	07/25/2007 08:41	SDG Number:	VOA01 Run Sequence ID: R019935

Preliminary Results

Analyte	DF	Result	Units	Date/time analyzed
Styrene	1	87 U	ug/kg	07/25/2007 18:08
Bromoform	1	87 U		
1,1,2,2-Tetrachloroethane	1	87 U		
trans-1,4-Dichloro-2-butene	1	440 U		
1,2,3-Trichloropropane	1	87 U		
1,2-Dibromo-3-chloropropane	1	87 U		
Dibromofluoromethane	1	106.2	%	
1,2-Dichloroethane-d4	1	100.5		
Toluene-d8	1	97.9		
4-Bromofluorobenzene	1	99.3		

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Laucks Testing Laboratories
Preliminary Results
Printed on: 7/26/2007

Method: Purgeable Organic Compounds by GC/MS (8260B)

Client::	Tetra Tech NUS, Inc.	Project:	NSWC Crane VOA
Sample ID:	08SB05072307-DL	Lab sample ID:	VOA01-005DL
Date/time collected:	07/23/2007 12:30	Date/time received:	07/24/2007 09:00
Date/time prepared:	07/26/2007 09:17	SDG Number:	VOA01 Run Sequence ID: R019944

Preliminary Results

Analyte	DF	Result	Units	Date/time analyzed
Xylenes, Total	50	4400 U	ug/kg	07/26/2007 13:47
Dichlorodifluoromethane	50	4400 U		
Chloromethane	50	4400 U		
Vinyl chloride	50	4400 U		
Bromomethane	50	4400 U		
Chloroethane	50	4400 U		
Trichlorofluoromethane	50	4400 U		
1,1-Dichloroethene	50	4400 U		
Acrolein	50	22000 U		
Acetone	50	22000 U		
Iodomethane	50	22000 U		
Carbon disulfide	50	4400 U		
Allyl chloride	50	22000 U		
Methylene chloride	50	4400 U		
Methyl tert-butyl ether	50	4400 U		
trans-1,2-Dichloroethene	50	4400 U		
Acrylonitrile	50	22000 U		
Vinyl acetate	50	22000 U		
1,1-Dichloroethane	50	9000		
Chloroprene	50	22000 U		
cis-1,2-Dichloroethene	50	120000		
2-Butanone	50	22000 U		
Methacrylonitrile	50	44000 U		

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Laucks Testing Laboratories
Preliminary Results
Printed on: 7/26/2007

Method: Purgeable Organic Compounds by GC/MS (8260B)

Client::	Tetra Tech NUS, Inc.	Project:	NSWC Crane VOA
Sample ID:	08SB05072307-DL	Lab sample ID:	VOA01-005DL
Date/time collected:	07/23/2007 12:30	Date/time received:	07/24/2007 09:00
Date/time prepared:	07/26/2007 09:17	SDG Number:	VOA01 Run Sequence ID: R019944

Preliminary Results

Analyte	DF	Result	Units	Date/time analyzed
Chloroform	50	4400 U	ug/kg	07/26/2007 13:47
1,1,1-Trichloroethane	50	69000		
Carbon tetrachloride	50	4400 U		
Methyl methacrylate	50	22000 U		
Benzene	50	4400 U		
1,2-Dichloroethane	50	4400 U		
Trichloroethene	50	4400 U		
1,2-Dichloropropane	50	4400 U		
Dibromomethane	50	4400 U		
Bromodichloromethane	50	4400 U		
cis-1,3-Dichloropropene	50	4400 U		
4-Methyl-2-pentanone	50	22000 U		
Toluene	50	4400 U		
Ethyl methacrylate	50	22000 U		
trans-1,3-Dichloropropene	50	4400 U		
1,1,2-Trichloroethane	50	4400 U		
Tetrachloroethene	50	4400 U		
2-Hexanone	50	22000 U		
Dibromochloromethane	50	4400 U		
1,2-Dibromoethane	50	4400 U		
Chlorobenzene	50	4400 U		
Ethylbenzene	50	4400 U		
1,1,1,2-Tetrachloroethane	50	4400 U		

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Laucks Testing Laboratories
Preliminary Results
Printed on: 7/26/2007

Method: Purgeable Organic Compounds by GC/MS (8260B)

Client::	Tetra Tech NUS, Inc.	Project:	NSWC Crane VOA
Sample ID:	08SB05072307-DL	Lab sample ID:	VOA01-005DL
Date/time collected:	07/23/2007 12:30	Date/time received:	07/24/2007 09:00
Date/time prepared:	07/26/2007 09:17	SDG Number:	VOA01 Run Sequence ID: R019944

Preliminary Results

Analyte	DF	Result	Units	Date/time analyzed
Styrene	50	4400 U	ug/kg	07/26/2007 13:47
Bromoform	50	4400 U		
1,1,2,2-Tetrachloroethane	50	4400 U		
trans-1,4-Dichloro-2-butene	50	22000 U		
1,2,3-Trichloropropane	50	4400 U		
1,2-Dibromo-3-chloropropane	50	4400 U		
Dibromofluoromethane	50	101.3	%	
1,2-Dichloroethane-d4	50	102.2		
Toluene-d8	50	95.8		
4-Bromofluorobenzene	50	99.6		

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Laucks
Testing Laboratories, Inc.

940 South Harney St.
Seattle, WA 98108
(206) 767-5060 FAX (206) 767-5063

FAX Cover Sheet

To: Ralph Basinski
FAX Number:
Company: TENUS
Date: 7/27/07
From: Elaine Walker
No. of Pages (including cover page): 6

Preliminary Results for: cc: Ed Sedlmayer

Workorders(s): NA

SDG (s): VOA01

Analysis: 8260 TCLP

Verified by: [illegible]

Do these samples need to be re-analyzed? Yes No
If yes, which samples?:
Reason:

The preliminary results for the re-analysis will be faxed on (date):

Laucks does not certify that these results meet NELAC Standards because all NELAC required elements are not included in the facsimile. Please refer to the full report to review all NELAC required elements.

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Laucks Testing Laboratories
Preliminary Results
Printed on: 7/27/2007

Method: Purgeable Organic Compounds by GC/MS (8260B)

Client::	Tetra Tech NUS, Inc.	Project:	NSWC Crane VOA
Sample ID:	08SB01072307	Lab sample ID:	VOA01-001
Date/time collected:	07/23/2007 08:38	Date/time received:	07/24/2007 09:00
Date/time prepared:	07/27/2007 08:21	SDG Number:	VOA01 Run Sequence ID: R019974

Preliminary Results

Analyte	DF	Result	Units	Date/time analyzed
Vinyl chloride	50	50 U	ug/L	07/27/2007 10:20
1,1-Dichloroethene	50	93		
2-Butanone	50	250 U		
Chloroform	50	50 U		
Carbon tetrachloride	50	50 U		
Benzene	50	50 U		
1,2-Dichloroethane	50	50 U		
Trichloroethene	50	62		
Tetrachloroethene	50	50 U		
Chlorobenzene	50	50 U		
Dibromofluoromethane	50	104.9	%	
1,2-Dichloroethane-d4	50	102.9		
Toluene-d8	50	95.3		
4-Bromofluorobenzene	50	101.4		

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Laucks Testing Laboratories
Preliminary Results
Printed on: 7/27/2007

Method: Purgeable Organic Compounds by GC/MS (8260B)

Client::	Tetra Tech NUS, Inc.	Project:	NSWC Crane VOA
Sample ID:	08SB02072307	Lab sample ID:	VOA01-002
Date/time collected:	07/23/2007 09:41	Date/time received:	07/24/2007 09:00
Date/time prepared:	07/27/2007 08:21	SDG Number:	VOA01 Run Sequence ID: R019974

Preliminary Results

Analyte	DF	Result	Units	Date/time analyzed
Vinyl chloride	50	50 U	ug/L	07/27/2007 10:45
1,1-Dichloroethene	50	91		
2-Butanone	50	250 U		
Chloroform	50	50 U		
Carbon tetrachloride	50	50 U		
Benzene	50	50 U		
1,2-Dichloroethane	50	50 U		
Trichloroethene	50	220		
Tetrachloroethene	50	50 U		
Chlorobenzene	50	50 U		
Dibromofluoromethane	50	107.3	%	
1,2-Dichloroethane-d4	50	102.2		
Toluene-d8	50	95.8		
4-Bromofluorobenzene	50	102		

Laucks does not certify that these results meet NELAC Standards because all NELAC required elements are not included in the facsimile. Pease refer to the full report to review all NELAC required elements.

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Laucks Testing Laboratories
Preliminary Results
Printed on: 7/27/2007

Method: Purgeable Organic Compounds by GC/MS (8260B)

Client::	Tetra Tech NUS, Inc.	Project:	NSWC Crane VOA
Sample ID:	08SB03072307	Lab sample ID:	VOA01-003
Date/time collected:	07/23/2007 10:51	Date/time received:	07/24/2007 09:00
Date/time prepared:	07/27/2007 08:21	SDG Number:	VOA01 Run Sequence ID: R019974

Preliminary Results

Analyte	DF	Result	Units	Date/time analyzed
Vinyl chloride	50	310	ug/L	07/27/2007 11:09
1,1-Dichloroethene	50	28 J		
2-Butanone	50	250 U		
Chloroform	50	50 U		
Carbon tetrachloride	50	50 U		
Benzene	50	50 U		
1,2-Dichloroethane	50	50 U		
Trichloroethene	50	50 U		
Tetrachloroethene	50	50 U		
Chlorobenzene	50	50 U		
Dibromofluoromethane	50	105.2	%	
1,2-Dichloroethane-d4	50	102.4		
Toluene-d8	50	95		
4-Bromofluorobenzene	50	101.2		

Laucks does not certify that these results meet NELAC Standards because all NELAC required elements are not included in the facsimile. Pease refer to the full report to review all NELAC required elements.

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Laucks Testing Laboratories
Preliminary Results
Printed on: 7/27/2007

Method: Purgeable Organic Compounds by GC/MS (8260B)

Client::	Tetra Tech NUS, Inc.	Project:	NSWC Crane VOA
Sample ID:	08SB04072307	Lab sample ID:	VOA01-004
Date/time collected:	07/23/2007 11:50	Date/time received:	07/24/2007 09:00
Date/time prepared:	07/27/2007 08:21	SDG Number:	VOA01 Run Sequence ID: R019974

Preliminary Results

Analyte	DF	Result	Units	Date/time analyzed
Vinyl chloride	50	50 U	ug/L	07/27/2007 11:34
1,1-Dichloroethene	50	57		
2-Butanone	50	250 U		
Chloroform	50	50 U		
Carbon tetrachloride	50	50 U		
Benzene	50	50 U		
1,2-Dichloroethane	50	50 U		
Trichloroethene	50	50 U		
Tetrachloroethene	50	50 U		
Chlorobenzene	50	50 U		
Dibromofluoromethane	50	105.7	%	
1,2-Dichloroethane-d4	50	102.6		
Toluene-d8	50	93.5		
4-Bromofluorobenzene	50	102.3		

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Laucks Testing Laboratories
Preliminary Results
Printed on: 7/27/2007

Method: Purgeable Organic Compounds by GC/MS (8260B)

Client::	Tetra Tech NUS, Inc.	Project:	NSWC Crane VOA
Sample ID:	08SB05072307	Lab sample ID:	VOA01-005
Date/time collected:	07/23/2007 12:30	Date/time received:	07/24/2007 09:00
Date/time prepared:	07/27/2007 08:21	SDG Number:	VOA01 Run Sequence ID: R019974

Preliminary Results

Analyte	DF	Result	Units	Date/time analyzed
Vinyl chloride	50	50 U	ug/L	07/27/2007 12:00
1,1-Dichloroethene	50	64		
2-Butanone	50	250 U		
Chloroform	50	50 U		
Carbon tetrachloride	50	50 U		
Benzene	50	50 U		
1,2-Dichloroethane	50	50 U		
Trichloroethene	50	50 U		
Tetrachloroethene	50	50 U		
Chlorobenzene	50	50 U		
Dibromofluoromethane	50	105.2	%	
1,2-Dichloroethane-d4	50	103.9		
Toluene-d8	50	95		
4-Bromofluorobenzene	50	101.9		

Laucks does not certify that these results meet NELAC Standards because all NELAC required elements are not included in the facsimile. Pease refer to the full report to review all NELAC required elements.

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Tetra Tech NUS **INTERNAL CORRESPONDENCE**

TO:	**R. BASINSKI**	**DATE:**	**NOVEMBER 5, 2007**
FROM:	**EDWARD SEDLMYER**	**COPIES:**	**DV FILE**

SUBJECT: **ORGANIC DATA VALIDATION – VOC / TCLP VOC**
CTO 020, NSWC CRANE
SDG VOA01

SAMPLES: 5 / Solid

08SB01072307	08SB02072307	08SB03072307
08SB04072307	08SB05072307	

OVERVIEW

The sample set for CTO 020; NSWC CRANE, SDG VOA01 consists of five (5) solid environmental samples. All samples were analyzed for volatile organic compounds (VOC) and toxicity characteristic leaching procedure (TCLP) volatiles.

The samples were collected by TetraTech NUS on July 23, 2007 and analyzed by Laucks Testing Laboratories, Seattle, WA. All analyses were conducted in accordance with USEPA SW 846 Methods 1311 and 8260B analytical and reporting protocol. 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
- * Detection Limits

The symbol (*) indicates that all quality control criteria were met for this parameter. Problems affecting data quality are discussed below; documentation supporting these findings is presented in Appendix C. Qualified Analytical results are presented in Appendix A. Results as reported by the laboratory are presented in Appendix B.

VOC

Calibration verification percent difference (%D) exceeded the 25% quality control limit for dichlorodifluoromethane on instrument 5973Y, on 07/25/07, at 11:05. No action was taken on this basis because the percent difference was less than 90% and all results were non-detected.

All samples were analyzed as medium level soils and at 50X of a medium analysis due to concentrations greater than the linear calibration range for 1,1-dichloroethane, cis-1,2-dichloroethane, and/or 1,1,1-trichloroethane. The diluted results for 1,1-dichloroethane, cis-1,2-dichloroethane, and/or 1,1,1-trichloroethane were taken from the diluted analysis. All other results were reported from the undiluted medium level analysis.

TCLP VOA

Calibration verification percent difference (%D) exceeded the 25% quality control limit for carbon tetrachloride on instrument 5973Y, on 07/27/07, at 08:43. No action was taken on this basis because the percent difference was less than 90% and all results were non-detected.

Additional Comments

Positive results reported below the reporting limit but above the threshold value were qualified as estimated, J.

EXECUTIVE SUMMARY

Laboratory Performance Issues: Two VOC compounds exceeded %D quality control criterion in the continuing calibrations but did not result in qualification of the data.

Other Factors Affecting Data Quality: None.

The data for these analyses were reviewed with reference to the EPA Functional Guidelines for Organic Data Validation (October 1999) and the Department of Defense (DoD) document entitled "Quality Systems Manual (QSM) for Environmental Laboratories" (January 2006). The text of this report has been formulated to address only those problem areas affecting data quality.

"I attest that the data referenced herein were validated according to the agreed upon validation criteria as specified in the DoD QSM."

Edward Sedlmyer
Tetra Tech 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 - 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: 00352

SDG: VOA01 MEDIA: SOIL DATA FRACTION: OV

nsample	08SB01072307	nsample	08SB01072307	nsample	08SB01072307DL
samp_date	7/23/2007 8:38:00 AM	samp_date	7/23/2007 8:38:00 AM	samp_date	7/23/2007 8:38:00 AM
lab_id	VOA01-001	lab_id	VOA01-001	lab_id	VOA01-001DL
qc_type	NM	qc_type	NM	qc_type	NM
units	UG/KG	units	UG/KG	units	UG/KG
Pct_Solids	67.3	Pct_Solids	67.3	Pct_Solids	67.3
DUP_OF:		DUP_OF:		DUP_OF:	

Parameter	Result	Val Qual	Qual Code
1,1,1,2-TETRACHLOROETHANE	120	U	
1,1,2,2-TETRACHLOROETHANE	120	U	
1,1,2-TRICHLOROETHANE	120	U	
1,1-DICHLOROETHENE	4600		
1,2,3-TRICHLOROPROPANE	120	U	
1,2-DIBROMO-3-CHLOROPROPANE	120	U	
1,2-DIBROMOETHANE	120	U	
1,2-DICHLOROETHANE	120	U	
1,2-DICHLOROPROPANE	120	U	
2-BUTANONE	590	U	
2-HEXANONE	590	U	
3-CHLOROPROPENE	590	U	
4-METHYL-2-PENTANONE	590	U	
ACETONE	360	J	P
ACROLEIN	590	U	
ACRYLONITRILE	590	U	
BENZENE	120	U	
BROMODICHLOROMETHANE	120	U	
BROMOFORM	120	U	
BROMOMETHANE	120	U	
CARBON DISULFIDE	120	U	
CARBON TETRACHLORIDE	120	U	
CHLOROBENZENE	120	U	
CHLORODIBROMOMETHANE	120	U	
CHLOROETHANE	190		
CHLOROFORM	120	U	
CHLOROMETHANE	120	U	
CHLOROPRENE	590	U	
CIS-1,3-DICHLOROPROPENE	120	U	
DIBROMOMETHANE	120	U	
DICHLORODIFLUOROMETHANE	120	U	
ETHYL METHACRYLATE	590	U	

Parameter	Result	Val Qual	Qual Code
ETHYLBENZENE	160		
METHACRYLONITRILE	1200	U	
METHYL IODIDE	590	U	
METHYL METHACRYLATE	590	U	
METHYL TERT-BUTYL ETHER	120	U	
METHYLENE CHLORIDE	120	U	
STYRENE	120	U	
TETRACHLOROETHENE	310		
TOLUENE	4200		
TOTAL XYLENES	840		
TRANS-1,2-DICHLOROETHENE	280		
TRANS-1,3-DICHLOROPROPENE	120	U	
TRANS-1,4-DICHLORO-2-BUTENE	590	U	
TRICHLOROETHENE	2000		
TRICHLOROFLUOROMETHANE	120	U	
VINYL ACETATE	590	U	
VINYL CHLORIDE	120	U	

Parameter	Result	Val Qual	Qual Code
1,1,1-TRICHLOROETHANE	270000		
1,1-DICHLOROETHANE	21000		
CIS-1,2-DICHLOROETHENE	290000		

nsample	08SB02072307	nsample	08SB02072307	nsample	08SB02072307DL
samp_date	7/23/2007 9:41:00 AM	samp_date	7/23/2007 9:41:00 AM	samp_date	7/23/2007 9:41:00 AM
lab_id	VOA01-002	lab_id	VOA01-002	lab_id	VOA01-002DL
qc_type	NM	qc_type	NM	qc_type	NM
units	UG/KG	units	UG/KG	units	UG/KG
Pct_Solids	61.9	Pct_Solids	61.9	Pct_Solids	61.9
DUP_OF:		DUP_OF:		DUP_OF:	

Parameter	Result	Val Qual	Qual Code
1,1,1,2-TETRACHLOROETHANE	130	U	
1,1,2,2-TETRACHLOROETHANE	130	U	
1,1,2-TRICHLOROETHANE	130	U	
1,1-DICHLOROETHANE	21000		
1,1-DICHLOROETHENE	3900		
1,2,3-TRICHLOROPROPANE	130	U	
1,2-DIBROMO-3-CHLOROPROPANE	130	U	
1,2-DIBROMOETHANE	130	U	
1,2-DICHLOROETHANE	130	U	
1,2-DICHLOROPROPANE	130	U	
2-BUTANONE	660	U	
2-HEXANONE	660	U	
3-CHLOROPROPENE	660	U	
4-METHYL-2-PENTANONE	660	U	
ACETONE	190	J	P
ACROLEIN	660	U	
ACRYLONITRILE	660	U	
BENZENE	130	U	
BROMODICHLOROMETHANE	130	U	
BROMOFORM	130	U	
BROMOMETHANE	130	U	
CARBON DISULFIDE	130	U	
CARBON TETRACHLORIDE	130	U	
CHLOROBENZENE	130	U	
CHLORODIBROMOMETHANE	130	U	
CHLOROETHANE	150		
CHLOROFORM	130	U	
CHLOROMETHANE	130	U	
CHLOROPRENE	660	U	
CIS-1,3-DICHLOROPROPENE	130	U	
DIBROMOMETHANE	130	U	
DICHLORODIFLUOROMETHANE	130	U	

Parameter	Result	Val Qual	Qual Code
ETHYL METHACRYLATE	660	U	
ETHYLBENZENE	110	J	P
METHACRYLONITRILE	1300	U	
METHYL IODIDE	660	U	
METHYL METHACRYLATE	660	U	
METHYL TERT-BUTYL ETHER	130	U	
METHYLENE CHLORIDE	130	U	
STYRENE	130	U	
TETRACHLOROETHENE	380		
TOLUENE	3500		
TOTAL XYLENES	550		
TRANS-1,2-DICHLOROETHENE	240		
TRANS-1,3-DICHLOROPROPENE	130	U	
TRANS-1,4-DICHLORO-2-BUTENE	660	U	
TRICHLOROETHENE	3700		
TRICHLOROFLUOROMETHANE	130	U	
VINYL ACETATE	660	U	
VINYL CHLORIDE	130	U	

Parameter	Result	Val Qual	Qual Code
1,1,1-TRICHLOROETHANE	260000		
CIS-1,2-DICHLOROETHENE	200000		

PROJ_NO: 00352

SDG: VOA01 MEDIA: SOIL DATA FRACTION: OV

nsample	08SB03072307	nsample	08SB03072307	nsample	08SB03072307DL
samp_date	7/23/2007 10:51:00 AM	samp_date	7/23/2007 10:51:00 AM	samp_date	7/23/2007 10:51:00 AM
lab_id	VOA01-003	lab_id	VOA01-003	lab_id	VOA01-003DL
qc_type	NM	qc_type	NM	qc_type	NM
units	UG/KG	units	UG/KG	units	UG/KG
Pct_Solids	75.6	Pct_Solids	75.6	Pct_Solids	75.6
DUP_OF:		DUP_OF:		DUP_OF:	

Parameter	Result	Val Qual	Qual Code
1,1,1,2-TETRACHLOROETHANE	99	U	
1,1,2,2-TETRACHLOROETHANE	99	U	
1,1,2-TRICHLOROETHANE	99	U	
1,1-DICHLOROETHENE	910		
1,2,3-TRICHLOROPROPANE	99	U	
1,2-DIBROMO-3-CHLOROPROPANE	99	U	
1,2-DIBROMOETHANE	99	U	
1,2-DICHLOROETHANE	99	U	
1,2-DICHLOROPROPANE	99	U	
2-BUTANONE	490	U	
2-HEXANONE	490	U	
3-CHLOROPROPENE	490	U	
4-METHYL-2-PENTANONE	490	U	
ACETONE	170	J	P
ACROLEIN	490	U	
ACRYLONITRILE	490	U	
BENZENE	99	U	
BROMODICHLOROMETHANE	99	U	
BROMOFORM	99	U	
BROMOMETHANE	99	U	
CARBON DISULFIDE	99	U	
CARBON TETRACHLORIDE	99	U	
CHLOROBENZENE	99	U	
CHLORODIBROMOMETHANE	99	U	
CHLOROETHANE	180		
CHLOROFORM	99	U	
CHLOROMETHANE	99	U	
CHLOROPRENE	490	U	
CIS-1,3-DICHLOROPROPENE	99	U	
DIBROMOMETHANE	99	U	
DICHLORODIFLUOROMETHANE	99	U	
ETHYL METHACRYLATE	490	U	

Parameter	Result	Val Qual	Qual Code
ETHYLBENZENE	74	J	P
METHACRYLONITRILE	990	U	
METHYL IODIDE	490	U	
METHYL METHACRYLATE	490	U	
METHYL TERT-BUTYL ETHER	99	U	
METHYLENE CHLORIDE	99	U	
STYRENE	99	U	
TETRACHLOROETHENE	99	U	
TOLUENE	1800		
TOTAL XYLENES	370		
TRANS-1,2-DICHLOROETHENE	230		
TRANS-1,3-DICHLOROPROPENE	99	U	
TRANS-1,4-DICHLORO-2-BUTENE	490	U	
TRICHLOROETHENE	490		
TRICHLOROFLUOROMETHANE	99	U	
VINYL ACETATE	490	U	
VINYL CHLORIDE	10000		

Parameter	Result	Val Qual	Qual Code
1,1,1-TRICHLOROETHANE	68000		
1,1-DICHLOROETHANE	36000		
CIS-1,2-DICHLOROETHENE	100000		

PROJ_ 00352

SDG: VOA01 MEDIA: SOIL DATA FRACTION: OV

nsample	08SB04072307	nsample	08SB04072307	nsample	08SB04072307DL
samp_date	7/23/2007 11:50:00 AM	samp_date	7/23/2007 11:50:00 AM	samp_date	7/23/2007 11:50:00 AM
lab_id	VOA01-004	lab_id	VOA01-004	lab_id	VOA01-004DL
qc_type	NM	qc_type	NM	qc_type	NM
units	UG/KG	units	UG/KG	units	UG/KG
Pct_Solids	67.1	Pct_Solids	67.1	Pct_Solids	67.1
DUP_OF:		DUP_OF:		DUP_OF:	

Parameter	Result	Val Qual	Qual Code
1,1,1,2-TETRACHLOROETHANE	120	U	
1,1,2,2-TETRACHLOROETHANE	120	U	
1,1,2-TRICHLOROETHANE	120	U	
1,1-DICHLOROETHENE	5100		
1,2,3-TRICHLOROPROPANE	120	U	
1,2-DIBROMO-3-CHLOROPROPANE	120	U	
1,2-DIBROMOETHANE	120	U	
1,2-DICHLOROETHANE	120	U	
1,2-DICHLOROPROPANE	120	U	
2-BUTANONE	590	U	
2-HEXANONE	590	U	
3-CHLOROPROPENE	590	U	
4-METHYL-2-PENTANONE	590	U	
ACETONE	530	J	P
ACROLEIN	590	U	
ACRYLONITRILE	590	U	
BENZENE	120	U	
BROMODICHLOROMETHANE	120	U	
BROMOFORM	120	U	
BROMOMETHANE	120	U	
CARBON DISULFIDE	120	U	
CARBON TETRACHLORIDE	120	U	
CHLOROBENZENE	120	U	
CHLORODIBROMOMETHANE	120	U	
CHLOROETHANE	750		
CHLOROFORM	120	U	
CHLOROMETHANE	120	U	
CHLOROPRENE	590	U	
CIS-1,3-DICHLOROPROPENE	120	U	
DIBROMOMETHANE	120	U	
DICHLORODIFLUOROMETHANE	120	U	
ETHYL METHACRYLATE	590	U	

Parameter	Result	Val Qual	Qual Code
ETHYLBENZENE	110	J	P
METHACRYLONITRILE	1200	U	
METHYL IODIDE	590	U	
METHYL METHACRYLATE	590	U	
METHYL TERT-BUTYL ETHER	120	U	
METHYLENE CHLORIDE	120	U	
STYRENE	120	U	
TETRACHLOROETHENE	260		
TOLUENE	2400		
TOTAL XYLENES	600		
TRANS-1,2-DICHLOROETHENE	490		
TRANS-1,3-DICHLOROPROPENE	120	U	
TRANS-1,4-DICHLORO-2-BUTENE	590	U	
TRICHLOROETHENE	940		
TRICHLOROFLUOROMETHANE	120	U	
VINYL ACETATE	590	U	
VINYL CHLORIDE	410		

Parameter	Result	Val Qual	Qual Code
1,1,1-TRICHLOROETHANE	280000		
1,1-DICHLOROETHANE	27000		
CIS-1,2-DICHLOROETHENE	360000		

PROJ_NO: 00352

SDG: VOA01 MEDIA: SOIL DATA FRACTION: OV

nsample	08SB05072307	nsample	08SB05072307	nsample	08SB05072307DL
samp_date	7/23/2007 12:30:00 PM	samp_date	7/23/2007 12:30:00 PM	samp_date	7/23/2007 12:30:00 PM
lab_id	VOA01-005	lab_id	VOA01-005	lab_id	VOA01-005DL
qc_type	NM	qc_type	NM	qc_type	NM
units	UG/KG	units	UG/KG	units	UG/KG
Pct_Solids	82.0	Pct_Solids	82.0	Pct_Solids	82.0
DUP_OF:		DUP_OF:		DUP_OF:	

Parameter	Result	Val Qual	Qual Code
1,1,1,2-TETRACHLOROETHANE	87	U	
1,1,2,2-TETRACHLOROETHANE	87	U	
1,1,2-TRICHLOROETHANE	87	U	
1,1-DICHLOROETHANE	11000		
1,1-DICHLOROETHENE	1000		
1,2,3-TRICHLOROPROPANE	87	U	
1,2-DIBROMO-3-CHLOROPROPANE	87	U	
1,2-DIBROMOETHANE	87	U	
1,2-DICHLOROETHANE	87	U	
1,2-DICHLOROPROPANE	87	U	
2-BUTANONE	440	U	
2-HEXANONE	440	U	
3-CHLOROPROPENE	440	U	
4-METHYL-2-PENTANONE	440	U	
ACETONE	200	J	P
ACROLEIN	440	U	
ACRYLONITRILE	440	U	
BENZENE	87	U	
BROMODICHLOROMETHANE	87	U	
BROMOFORM	87	U	
BROMOMETHANE	87	U	
CARBON DISULFIDE	87	U	
CARBON TETRACHLORIDE	87	U	
CHLOROBENZENE	87	U	
CHLORODIBROMOMETHANE	87	U	
CHLOROETHANE	340		
CHLOROFORM	87	U	
CHLOROMETHANE	87	U	
CHLOROPRENE	440	U	
CIS-1,3-DICHLOROPROPENE	87	U	
DIBROMOMETHANE	87	U	
DICHLORODIFLUOROMETHANE	87	U	

Parameter	Result	Val Qual	Qual Code
ETHYL METHACRYLATE	440	U	
ETHYLBENZENE	87	U	
METHACRYLONITRILE	870	U	
METHYL IODIDE	440	U	
METHYL METHACRYLATE	440	U	
METHYL TERT-BUTYL ETHER	87	U	
METHYLENE CHLORIDE	87	U	
STYRENE	87	U	
TETRACHLOROETHENE	64	J	P
TOLUENE	640		
TOTAL XYLENES	180		
TRANS-1,2-DICHLOROETHENE	180		
TRANS-1,3-DICHLOROPROPENE	87	U	
TRANS-1,4-DICHLORO-2-BUTENE	440	U	
TRICHLOROETHENE	250		
TRICHLOROFLUOROMETHANE	87	U	
VINYL ACETATE	440	U	
VINYL CHLORIDE	150		

Parameter	Result	Val Qual	Qual Code
1,1,1-TRICHLOROETHANE	69000		
CIS-1,2-DICHLOROETHENE	120000		

PROJ_ 00352

SDG: VOA01 MEDIA: SOIL DATA FRACTION: TCLPV

nsample	08SB01072307	nsample	08SB02072307	nsample	08SB03072307
samp_date	7/23/2007 8:38:00 AM	samp_date	7/23/2007 9:41:00 AM	samp_date	7/23/2007 10:51:00 AM
lab_id	VOA01-001	lab_id	VOA01-002	lab_id	VOA01-003
qc_type	NM	qc_type	NM	qc_type	NM
units	UG/L	units	UG/L	units	UG/L
Pct_Solids	67.3	Pct_Solids	61.9	Pct_Solids	75.6
DUP_OF:		DUP_OF:		DUP_OF:	

Parameter	Result	Val Qual	Qual Code
1,1-DICHLOROETHENE	93		
1,2-DICHLOROETHANE	50	U	
2-BUTANONE	250	U	
BENZENE	50	U	
CARBON TETRACHLORIDE	50	U	
CHLOROBENZENE	50	U	
CHLOROFORM	50	U	
TETRACHLOROETHENE	50	U	
TRICHLOROETHENE	62		
VINYL CHLORIDE	50	U	

Parameter	Result	Val Qual	Qual Code
1,1-DICHLOROETHENE	91		
1,2-DICHLOROETHANE	50	U	
2-BUTANONE	250	U	
BENZENE	50	U	
CARBON TETRACHLORIDE	50	U	
CHLOROBENZENE	50	U	
CHLOROFORM	50	U	
TETRACHLOROETHENE	50	U	
TRICHLOROETHENE	220		
VINYL CHLORIDE	50	U	

Parameter	Result	Val Qual	Qual Code
1,1-DICHLOROETHENE	28	J	P
1,2-DICHLOROETHANE	50	U	
2-BUTANONE	250	U	
BENZENE	50	U	
CARBON TETRACHLORIDE	50	U	
CHLOROBENZENE	50	U	
CHLOROFORM	50	U	
TETRACHLOROETHENE	50	U	
TRICHLOROETHENE	50	U	
VINYL CHLORIDE	310		

PROJ_NO: 00352

SDG: VOA01 MEDIA: SOIL DATA FRACTION: TCLPV

nsample	08SB04072307	nsample	08SB05072307
samp_date	7/23/2007 11:50:00 AM	samp_date	7/23/2007 12:30:00 PM
lab_id	VOA01-004	lab_id	VOA01-005
qc_type	NM	qc_type	NM
units	UG/L	units	UG/L
Pct_Solids	75.6	Pct_Solids	67.1
DUP_OF:		DUP_OF:	

Parameter	Result	Val Qual	Qual Code
1,1-DICHLOROETHENE	57		
1,2-DICHLOROETHANE	50	U	
2-BUTANONE	250	U	
BENZENE	50	U	
CARBON TETRACHLORIDE	50	U	
CHLOROBENZENE	50	U	
CHLOROFORM	50	U	
TETRACHLOROETHENE	50	U	
TRICHLOROETHENE	50	U	
VINYL CHLORIDE	50	U	

Parameter	Result	Val Qual	Qual Code
1,1-DICHLOROETHENE	64		
1,2-DICHLOROETHANE	50	U	
2-BUTANONE	250	U	
BENZENE	50	U	
CARBON TETRACHLORIDE	50	U	
CHLOROBENZENE	50	U	
CHLOROFORM	50	U	
TETRACHLOROETHENE	50	U	
TRICHLOROETHENE	50	U	
VINYL CHLORIDE	50	U	

APPENDIX D

FIXED-BASE LABORATORY ANALTYICAL RESULTS FOR CONFIRMATION SAMPLES COLLECTED OCTBER 3 AND 4, AND NOVEMBER 12, 2007 (TETRA TECH)

RA TECH NUS, INC. | CHAIN OF CUSTODY | NUMBER 3267 | PAGE 1 OF

PROJECT NO:	FACILITY:	PROJECT MANAGER	PHONE NUMBER	LABORATORY NAME AND CONTACT:
112G00447	NSWC Crane	Basinski	412-921-8308	Laucks Laboratories
SAMPLERS (SIGNATURE)		FIELD OPERATIONS LEADER	PHONE NUMBER	ADDRESS
[signature]		Goerdt	412-443-0244	940 So. Harney St.
		CARRIER/WAYBILL NUMBER		CITY, STATE
		8616 5831 5978		Seattle, WA 98108

STANDARD TAT ☐
RUSH TAT ☒
☒ 24 hr. ☐ 48 hr. ☐ 72 hr. ☐ 7 day ☐ 14 day

CONTAINER TYPE PLASTIC (P) or GLASS (G): encore, G
PRESERVATIVE USED: 4°C, 4°C

DATE YEAR 2007	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	TYPE OF ANALYSIS: VOCs encore SW846 8260B	TYPE OF ANALYSIS: % moisture	COMMENTS
10/03	1250	085SW001	001	0	2	SO	G	4	3	1	
10/03	1258	085SW002	002	↓	↓	↓	↓	↓	↓	↓	
10/03	1305	085SW003	003	↓	↓	↓	↓	↓	↓	↓	
10/03	1315	085SW004	004	↓	↓	↓	↓	↓	↓	↓	
10/03	1325	085SW005	005	↓	↓	↓	↓	↓	↓	↓	
10/03	1330	085SW006	006	↓	↓	↓	↓	↓	↓	↓	
10/03	1346	085SW007	007	↓	↓	↓	↓	↓	↓	↓	
10/03	1352	085SW008	008	↓	↓	↓	↓	↓	↓	↓	
10/03	1400	085SW009	009	↓	↓	↓	↓	↓	↓	↓	
10/03	1409	085SW010	010	↓	↓	↓	↓	↓	↓	↓	
10/03	1420	085SW011	011	↓	↓	↓	↓	↓	9	1	Do MS/MSD
10/03	1425	085SW012	012	↓	↓	↓	↓	↓	3	1	
10/03	1435	085SW013	013	↓	↓	↓	↓	↓	3	1	

	DATE	TIME		DATE	TIME
1. RELINQUISHED BY: J. Goerdt	10/4/07	1800	1. RECEIVED BY		
2. RELINQUISHED BY			2. RECEIVED BY		
3. RELINQUISHED BY			3. RECEIVED BY		

COMMENTS

DISTRIBUTION: WHITE (ACCOMPANIES SAMPLE) YELLOW (FIELD COPY) PINK (FILE COPY)

4/02R
FORM NO. TtNUS-001

TETRA TECH NUS, INC. CHAIN OF CUSTODY | NUMBER 3268 | PAGE 2 OF 2

PROJECT NO:	FACILITY:	PROJECT MANAGER	PHONE NUMBER	LABORATORY NAME AND CONTACT:
112G00447	NSWC Crane	Basinski	412921 8308	Lauck Laboratories
SAMPLERS (SIGNATURE)		FIELD OPERATIONS LEADER	PHONE NUMBER	ADDRESS
[signature]		Goerdt	4124430244	940 So. Harney St
		CARRIER/WAYBILL NUMBER		CITY, STATE
		8616 5831 5978		Seattle, WA 98108

STANDARD TAT ☐
RUSH TAT ☒
☒ 24 hr. ☐ 48 hr. ☐ 72 hr. ☐ 7 day ☐ 14 day

CONTAINER TYPE PLASTIC (P) or GLASS (G): G
PRESERVATIVE USED: 4oC 4oC

DATE YEAR 2007	TIME	SAMPLE ID	LOCATION ID	TOP DEPTH (FT)	BOTTOM DEPTH (FT)	MATRIX (GW, SO, SW, SD, QC, ETC.)	COLLECTION METHOD GRAB (G) COMP (C)	No. OF CONTAINERS	TYPE OF ANALYSIS: VOCs 8260B	SW846	% moisture							COMMENTS
10/03	0000	08FD10030701	FD	0	NA	SO	G	4	3	1								
10/04	1229	08SSW014	014	0	2	SO	G	4	3	1								
10/04	1234	08SSW015	015	0	2	SO	G	4	3	1								Hot
10/04	1240	08SSW016	016	0	2	SO	G	4	3	1								

1. RELINQUISHED BY	DATE	TIME	1. RECEIVED BY	DATE	TIME
J. Goerdt	10-4-07	1800			
2. RELINQUISHED BY	DATE	TIME	2. RECEIVED BY	DATE	TIME
3. RELINQUISHED BY	DATE	TIME	3. RECEIVED BY	DATE	TIME

COMMENTS

DISTRIBUTION: WHITE (ACCOMPANIES SAMPLE) YELLOW (FIELD COPY) PINK (FILE COPY)

4/02R
FORM NO. TtNUS-001

A TECH NUS, INC. CHAIN OF CUSTODY NUMBER 0188 PAGE 1 OF _

PROJECT NO:	FACILITY:	PROJECT MANAGER	PHONE NUMBER	LABORATORY NAME AND CONTACT:
112G00352	NSWC Crane	R. Basinski	412-921-8308	Elaine Walker / Lauck
SAMPLERS (SIGNATURE)		FIELD OPERATIONS LEADER	PHONE NUMBER	ADDRESS
		J. Goerdt	412-921-8425	940 So. Harney St
		CARRIER/WAYBILL NUMBER		CITY, STATE
		Fed Ex-8616 5831 5897		Seattle WA 98108

STANDARD TAT ☒
RUSH TAT ☐
☐ 24 hr. ☐ 48 hr. ☐ 72 hr. ☐ 7 day ☐ 14 day

CONTAINER TYPE PLASTIC (P) or GLASS (G): P G G
PRESERVATIVE USED: 4°C 4°C HCl

DATE YEAR 2002	TIME	SAMPLE ID	LOCATION ID	TOP DEPTH (FT)	BOTTOM DEPTH (FT)	MATRIX (GW, SO, SW, SD, QC, ETC.)	COLLECTION METHOD GRAB (G) COMP (C)	No. OF CONTAINERS	TYPE OF ANALYSIS: VOC 846-8260B	TOC	VOC 846-8260B	COMMENTS
11/12	1230	08SSC001	001	0	1	SO	G	4	3	1		
11/12	1237	08SSC002	002	↓	↓	↓	↓	~~4~~ 10	~~3~~ 9	1		Do MS/MSD VOC
11/12	1244	08SSC003	003					4	3	1		
11/12	1252	08SSC004	004					4	3	1		
11/12	1300	08SSC005	005					4	3	1		
11/12	1310	08SSC006	006					4	3	1		
11/12	0000	08FD11120701	FD	↓	↓	QC ↓		4	3	1		
11/12	1410	08TB11120701	QC	NA	NA	~~AQC~~	↓	1			1	

1. RELINQUISHED BY	DATE	TIME	1. RECEIVED BY	DATE	TIME
	11-12-02	1800			
2. RELINQUISHED BY	DATE	TIME	2. RECEIVED BY	DATE	TIME
3. RELINQUISHED BY	DATE	TIME	3. RECEIVED BY	DATE	TIME

COMMENTS

DISTRIBUTION: WHITE (ACCOMPANIES SAMPLE) YELLOW (FIELD COPY) PINK (FILE COPY)

4/02R
FORM NO. TtNUS-001

CONFIRMATION SAMPLE ANALYSIS RESULTS
SWMU 8 - BUILDING 106 POND
NSWC CRANE
CRANE, INDIANA

SAMPLE LOCATION / SAMPLE ID SAMPLE DATE	08SSW001 10/3/2007		08SSW002 10/3/2007		08SSW003 10/3/2007		08SSW004 10/3/2007		08SSW005 10/3/2007	
PARAMETER										
1,1,1-TRICHLOROETHANE	87		1	U	41		260	J	1.1	U
1,1,2,2-TETRACHLOROETHANE	1.1	U	1	U	1	UJ	1	U	1.1	U
1,1,2-TRICHLOROETHANE	1.1	U	1	U	1	U	1	U	1.1	U
1,1,2-TRICHLOROTRIFLUOROETHANE	1.1	UJ	1	UJ	1	UJ	1	UJ	1.1	UJ
1,1-DICHLOROETHANE	150		32		84		230	J	4.6	
1,1-DICHLOROETHENE	3.1	J	1	U	1	U	3.3		1.1	U
1,2,4-TRICHLOROBENZENE	1.1	U	1	U	1	UJ	1	U	1.1	U
1,2-DIBROMO-3-CHLOROPROPANE	1.1	U	1	U	1	UJ	1	U	1.1	U
1,2-DIBROMOETHANE	1.1	U	1	U	1	U	1	U	1.1	U
1,2-DICHLOROBENZENE	1.1	U	1	U	1	UJ	1	U	1.1	U
1,2-DICHLOROETHANE	1.1	U	1	U	1	U	1	U	1.1	U
1,2-DICHLOROPROPANE	1.1	U	1	U	1	U	1	U	1.1	U
1,3-DICHLOROBENZENE	1.1	U	1	U	1	UJ	1	U	1.1	U
1,4-DICHLOROBENZENE	1.1	U	1	U	1	UJ	1	U	1.1	U
2-BUTANONE	1.1	U	1	U	1	U	5.5	J	1.1	U
2-HEXANONE	1.1	U	1	U	1	U	1	U	1.1	U
4-METHYL-2-PENTANONE	1.1	U	1	U	1	U	1	U	1.1	U
ACETONE	4.1	U	9	U	7	U	28	U	16	U
BENZENE	1.1	U	1	U	1	U	1	U	1.1	U
BROMODICHLOROMETHANE	1.1	U	1	U	1	U	1	U	1.1	U
BROMOFORM	1.1	U	1	U	1	U	1	U	1.1	U
BROMOMETHANE	1.1	U	1	U	1	U	1	U	1.1	U
CARBON DISULFIDE	1.1	U	1	U	1	U	1	U	1.1	U
CARBON TETRACHLORIDE	1.1	U	1	U	1	U	1	U	1.1	U
CHLOROBENZENE	1.1	U	1	U	1	U	1	U	1.1	U
CHLORODIBROMOMETHANE	1.1	U	1	U	1	U	1	U	1.1	U
CHLOROETHANE	3.8		97		14		340	J	10	
CHLOROFORM	1.1	U	1	U	1	U	1	U	1.1	U
CHLOROMETHANE	1.1	U	1	U	1	U	1	U	1.1	U
CIS-1,2-DICHLOROETHENE	220		5.5		390	J	240		2.1	J
CIS-1,3-DICHLOROPROPENE	1.1	U	1	U	1	U	1	U	1.1	U

CONFIRMATION SA[illegible] ANALYSIS RESULTS
SWMU 8 - BUILDING 106 POND
NSWC CRANE
CRANE, INDIANA

SAMPLE LOCATION / SAMPLE ID **SAMPLE DATE**	08SSW001 10/3/2007		08SSW002 10/3/2007		08SSW003 10/3/2007		08SSW004 10/3/2007		08SSW005 10/3/2007	
PARAMETER										
CYCLOHEXANE	1.1	U	1	U	1	U	1.8	J	1.1	U
DICHLORODIFLUOROMETHANE	1.1	U	1	U	1	U	1	U	1.1	U
ETHYLBENZENE	1.1	U	1	U	1	U	2.1	J	1.1	U
ISOPROPYLBENZENE	1.1	U	1	U	1	U	2.1	J	1.1	U
M+P-XYLENES	1.1	U	1	U	1	U	9.4		1.1	U
METHYL ACETATE	1.1	U	1	U	1	U	1	U	1.1	U
METHYL CYCLOHEXANE	1.1	U	1	U	1	U	7.7		1.1	U
METHYL TERT-BUTYL ETHER	1.1	U	1	U	1	U	1	U	1.1	U
METHYLENE CHLORIDE	1.1	UJ	1	UJ	1	UJ	1	UJ	1.1	UJ
O-XYLENE	1.1	U	1	U	1	U	5		1.1	U
STYRENE	1.1	U	1	U	1	U	1	U	1.1	U
TETRACHLOROETHENE	1.1	U	1	U	1	U	15		1.1	U
TOLUENE	1.1	U	1	U	1	U	5.3		1.1	U
TOTAL XYLENES	1.1	U	1	U	1	U	14		1.1	U
TRANS-1,2-DICHLOROETHENE	1.1	U	1	U	1	U	9.1		1.1	U
TRANS-1,3-DICHLOROPROPENE	1.1	U	1	U	1	U	1	U	1.1	U
TRICHLOROETHENE	12		1	U	6.9		550		2	J
TRICHLOROFLUOROMETHANE	1.1	U	1	U	1	U	1	U	1.1	U
VINYL CHLORIDE	1.1	U	3	J	1	U	74		1.1	U

SSW = surface soil from pond wall
SSC = surface soil from staging areas

Data Qualifiers:
J = estimated
U = non-detect

CONFIRMATION SAMPLE ANALYSIS RESULTS
SWMU 8 - BUILDING 106 POND
NSWC CRANE
CRANE, INDIANA

SAMPLE LOCATION / SAMPLE ID SAMPLE DATE	08SSW006 10/3/2007		08SSW007 10/3/2007		08SSW008 10/3/2007		08SSW009 10/3/2007		08SSW010 10/3/2007	
PARAMETER										
1,1,1-TRICHLOROETHANE	13	J	7.1		2.8	J	99		1.7	J
1,1,2,2-TETRACHLOROETHANE	1.7	U	1.3	U	1.1	U	0.96	U	1	U
1,1,2-TRICHLOROETHANE	1.7	U	1.3	U	1.1	U	0.96	U	1	U
1,1,2-TRICHLOROTRIFLUOROETHANE	1.7	UJ	1.3	UJ	1.1	UJ	0.96	UJ	1	UJ
1,1-DICHLOROETHANE	8.2	J	1.3	U	1.1	U	11		1	U
1,1-DICHLOROETHENE	1.7	U	1.3	U	1.1	U	0.96	U	1	U
1,2,4-TRICHLOROBENZENE	1.7	U	1.3	U	1.1	U	0.96	U	1	U
1,2-DIBROMO-3-CHLOROPROPANE	1.7	U	1.3	U	1.1	U	0.96	U	1	U
1,2-DIBROMOETHANE	1.7	U	1.3	U	1.1	U	0.96	U	1	U
1,2-DICHLOROBENZENE	1.7	U	1.3	U	1.1	U	0.96	U	1	U
1,2-DICHLOROETHANE	1.7	U	1.3	U	1.1	U	0.96	U	1	U
1,2-DICHLOROPROPANE	1.7	U	1.3	U	1.1	U	0.96	U	1	U
1,3-DICHLOROBENZENE	1.7	U	1.3	U	1.1	U	0.96	U	1	U
1,4-DICHLOROBENZENE	1.7	U	1.3	U	1.1	U	0.96	U	1	U
2-BUTANONE	1.7	U	1.3	U	1.1	U	0.96	U	1	U
2-HEXANONE	1.7	U	1.3	U	1.1	U	0.96	U	1	U
4-METHYL-2-PENTANONE	1.7	U	1.3	U	1.1	U	0.96	U	1	U
ACETONE	12	U	4.6	U	5.8	U	11	U	5.7	U
BENZENE	1.7	U	1.3	U	1.1	U	0.96	U	1	U
BROMODICHLOROMETHANE	1.7	U	1.3	U	1.1	U	0.96	U	1	U
BROMOFORM	1.7	U	1.3	U	1.1	U	0.96	U	1	U
BROMOMETHANE	1.7	U	1.3	U	1.1	U	0.96	U	1	U
CARBON DISULFIDE	1.7	U	1.3	U	1.1	U	0.96	U	1	U
CARBON TETRACHLORIDE	1.7	U	1.3	U	1.1	U	0.96	U	1	U
CHLOROBENZENE	1.7	U	1.3	U	1.1	U	0.96	U	1	U
CHLORODIBROMOMETHANE	1.7	U	1.3	U	1.1	U	0.96	U	1	U
CHLOROETHANE	4.8	J	1.3	U	1.1	U	0.96	U	1	U
CHLOROFORM	1.7	U	1.3	U	1.1	U	0.96	U	1	U
CHLOROMETHANE	1.7	U	1.3	U	1.1	U	0.96	U	1	U
CIS-1,2-DICHLOROETHENE	13	J	5		1.3	J	87		1	U
CIS-1,3-DICHLOROPROPENE	1.7	U	1.3	U	1.1	U	0.96	U	1	U

CONFIRMATION SAMPLE ANALYSIS RESULTS
SWMU 8 - BUILDING 106 POND
NSWC CRANE
CRANE, INDIANA

SAMPLE LOCATION / SAMPLE ID **SAMPLE DATE**	08SSW006 10/3/2007		08SSW007 10/3/2007		08SSW008 10/3/2007		08SSW009 10/3/2007		08SSW010 10/3/2007	
PARAMETER										
CYCLOHEXANE	1.7	U	1.3	U	1.1	U	0.96	U	1	U
DICHLORODIFLUOROMETHANE	1.7	U	1.3	U	1.1	U	0.96	U	1	U
ETHYLBENZENE	1.7	U	1.3	U	1.1	U	0.96	U	1	U
ISOPROPYLBENZENE	1.7	U	1.3	U	1.1	U	0.96	U	1	U
M+P-XYLENES	1.7	U	1.3	U	1.1	U	0.96	U	1	U
METHYL ACETATE	1.7	U	1.3	U	1.1	U	0.96	U	1	U
METHYL CYCLOHEXANE	1.7	U	1.3	U	1.1	U	0.96	U	1	U
METHYL TERT-BUTYL ETHER	1.7	U	1.3	U	1.1	U	0.96	U	1	U
METHYLENE CHLORIDE	24	U	1.3	UJ	22	U	0.96	UJ	1	UJ
O-XYLENE	1.7	U	1.3	U	1.1	U	0.96	U	1	U
STYRENE	1.7	U	1.3	U	1.1	U	0.96	U	1	U
TETRACHLOROETHENE	1.7	U	1.3	U	1.1	U	0.96	U	1	U
TOLUENE	1.7	U	1.3	U	1.1	U	0.96	U	1	U
TOTAL XYLENES	1.7	U	1.3	U	1.1	U	0.96	U	1	U
TRANS-1,2-DICHLOROETHENE	1.7	U	1.3	U	1.1	U	0.96	U	1	U
TRANS-1,3-DICHLOROPROPENE	1.7	U	1.3	U	1.1	U	0.96	U	1	U
TRICHLOROETHENE	2.1	J	7.5		5.9		150		1	U
TRICHLOROFLUOROMETHANE	1.7	U	1.3	U	1.1	U	0.96	U	1	U
VINYL CHLORIDE	1.7	U	1.3	U	1.1	U	0.96	U	1	U

SSW = surface soil from pond wall
SSC = surface soil from staging areas

Data Qualifiers:
J = estimated
U = non-detect

CONFIRMATION SAMPLE ANALYSIS RESULTS
SWMU 8 - BUILDING 106 POND
NSWC CRANE
CRANE, INDIANA

SAMPLE LOCATION / SAMPLE ID SAMPLE DATE	08SSW011 10/3/2007		08SSW012 10/3/2007		08SSW013 10/3/2007		08SSW014 10/4/2007		08SSW015 10/4/2007	
PARAMETER										
1,1,1-TRICHLOROETHANE	93	J	22		47		7.4		1.1	U
1,1,2,2-TETRACHLOROETHANE	1	U	1.1	U	1.1	U	1.5	U	1.1	U
1,1,2-TRICHLOROETHANE	1	U	1.1	U	1.1	U	1.5	U	1.1	U
1,1,2-TRICHLOROTRIFLUOROETHANE	1	UJ	1.1	UJ	1.1	UJ	1.5	UJ	1.1	UJ
1,1-DICHLOROETHANE	9.2		2.1	J	23		77		13	
1,1-DICHLOROETHENE	1	U	1.1	U	1.1	U	1.5	U	1.1	U
1,2,4-TRICHLOROBENZENE	1	UJ	1.1	U	1.1	U	1.5	U	1.1	U
1,2-DIBROMO-3-CHLOROPROPANE	1	U	1.1	U	1.1	U	1.5	U	1.1	U
1,2-DIBROMOETHANE	1	U	1.1	U	1.1	U	1.5	U	1.1	U
1,2-DICHLOROBENZENE	1	UJ	1.1	U	1.1	U	1.5	U	1.1	U
1,2-DICHLOROETHANE	1	U	1.1	U	1.1	U	1.5	U	1.1	U
1,2-DICHLOROPROPANE	1	U	1.1	U	1.1	U	1.5	U	1.1	U
1,3-DICHLOROBENZENE	1	UJ	1.1	U	1.1	U	1.5	U	1.1	U
1,4-DICHLOROBENZENE	1	UJ	1.1	U	1.1	U	1.5	U	1.1	U
2-BUTANONE	1	U	1.1	U	1.1	U	51		3.7	J
2-HEXANONE	1	UJ	1.1	U	1.1	U	1.5	U	1.1	U
4-METHYL-2-PENTANONE	1	U	1.1	U	1.1	U	1.5	U	1.1	U
ACETONE	5.7	U	7.8	U	7.8	U	170		24	U
BENZENE	1	U	1.1	U	1.1	U	1.5	U	1.1	U
BROMODICHLOROMETHANE	1	U	1.1	U	1.1	U	1.5	U	1.1	U
BROMOFORM	1	U	1.1	U	1.1	U	1.5	U	1.1	U
BROMOMETHANE	1	U	1.1	U	1.1	U	1.5	U	1.1	U
CARBON DISULFIDE	1	U	1.1	U	1.1	U	1.5	U	1.1	U
CARBON TETRACHLORIDE	1	U	1.1	U	1.1	U	1.5	U	1.1	U
CHLOROBENZENE	1	U	1.1	U	1.1	U	1.5	U	1.1	U
CHLORODIBROMOMETHANE	1	U	1.1	U	1.1	U	1.5	U	1.1	U
CHLOROETHANE	1	U	1.1	U	1.1	U	290		1.1	U
CHLOROFORM	1	U	1.1	U	1.1	U	1.5	U	1.1	U
CHLOROMETHANE	1	U	1.1	U	1.1	U	1.5	U	1.1	U
CIS-1,2-DICHLOROETHENE	74	J	10		140		140		3.9	
CIS-1,3-DICHLOROPROPENE	1	UJ	1.1	U	1.1	U	1.5	U	1.1	U

CONFIRMATION SA : ANALYSIS RESULTS
SWMU 8 - BUILDING 106 POND
NSWC CRANE
CRANE, INDIANA

SAMPLE LOCATION / SAMPLE ID SAMPLE DATE	08SSW011 10/3/2007		08SSW012 10/3/2007		08SSW013 10/3/2007		08SSW014 10/4/2007		08SSW015 10/4/2007	
PARAMETER										
CYCLOHEXANE	1	U	1.1	U	1.1	U	1.5	U	1.1	U
DICHLORODIFLUOROMETHANE	1	U	1.1	U	1.1	U	1.5	U	1.1	U
ETHYLBENZENE	1	U	1.1	U	1.1	U	1.5	U	1.1	U
ISOPROPYLBENZENE	1	U	1.1	U	1.1	U	1.5	U	1.1	U
M+P-XYLENES	1	UJ	1.1	U	1.1	U	1.5	U	1.1	U
METHYL ACETATE	1	U	1.1	U	1.1	U	1.5	U	1.1	U
METHYL CYCLOHEXANE	1	U	1.1	U	1.1	U	1.5	U	1.1	U
METHYL TERT-BUTYL ETHER	1	U	1.1	U	1.1	U	1.5	U	1.1	U
METHYLENE CHLORIDE	1	UJ	1.1	UJ	14	U	1.5	UJ	1.1	UJ
O-XYLENE	1	UJ	1.1	U	1.1	U	1.5	U	1.1	U
STYRENE	1	UJ	1.1	U	1.1	U	1.5	U	1.1	U
TETRACHLOROETHENE	1	U	1.1	U	1.1	U	1.5	U	1.1	U
TOLUENE	1	U	1.1	U	1.1	U	4	J	1.1	U
TOTAL XYLENES	1	UJ	1.1	U	1.1	U	1.5	U	1.1	U
TRANS-1,2-DICHLOROETHENE	1	U	1.1	U	1.1	U	4.7		1.1	U
TRANS-1,3-DICHLOROPROPENE	1	U	1.1	U	1.1	U	1.5	U	1.1	U
TRICHLOROETHENE	28	J	6.4		1.5	J	1.5	U	2.5	J
TRICHLOROFLUOROMETHANE	1	U	1.1	U	1.1	U	1.5	U	1.1	U
VINYL CHLORIDE	1	U	1.1	U	1.1	U	51		1.1	U

SSW = surface soil from pond wall
SSC = surface soil from staging areas

Data Qualifiers:
J = estimated
U = non-detect

CONFIRMATION SAMPLE ANALYSIS RESULTS
SWMU 8 - BUILDING 106 POND
NSWC CRANE
CRANE, INDIANA

SAMPLE LOCATION / SAMPLE ID SAMPLE DATE	08SSW016 10/4/2007		08SSC001 11/12/2007		08SSC002 11/12/2007		08SSC003 11/12/2007		08SSC004 11/12/2007	
PARAMETER										
1,1,1-TRICHLOROETHANE	1.2	U	0.95	U	0.94	U	1.1	U	1	U
1,1,2,2-TETRACHLOROETHANE	1.2	U	0.95	U	0.94	U	1.1	U	1	U
1,1,2-TRICHLOROETHANE	1.2	U	0.95	U	0.94	U	1.1	U	1	U
1,1,2-TRICHLOROTRIFLUOROETHANE	1.2	UJ	0.95	U	0.94	U	1.1	U	1	U
1,1-DICHLOROETHANE	1.2	U	0.95	U	0.94	UJ	1.1	U	1	U
1,1-DICHLOROETHENE	1.2	U	0.95	U	0.94	U	1.1	U	1	U
1,2,4-TRICHLOROBENZENE	1.2	U	0.95	U	0.94	UJ	1.1	U	1	U
1,2-DIBROMO-3-CHLOROPROPANE	1.2	U	0.95	U	0.94	U	1.1	U	1	U
1,2-DIBROMOETHANE	1.2	U	0.95	U	0.94	U	1.1	U	1	U
1,2-DICHLOROBENZENE	1.2	U	0.95	U	0.94	UJ	1.1	U	1	U
1,2-DICHLOROETHANE	1.2	U	0.95	U	0.94	U	1.1	U	1	U
1,2-DICHLOROPROPANE	1.2	U	0.95	U	0.94	U	1.1	U	1	U
1,3-DICHLOROBENZENE	1.2	U	0.95	U	0.94	U	1.1	U	1	U
1,4-DICHLOROBENZENE	1.2	U	0.95	U	0.94	U	1.1	U	1	U
2-BUTANONE	15		0.95	U	0.94	U	1.1	U	1	U
2-HEXANONE	1.2	U	0.95	U	0.94	U	1.1	U	1	U
4-METHYL-2-PENTANONE	1.2	U	0.95	U	0.94	U	1.1	U	1	U
ACETONE	52		2.6	U	1.6	U	2.4	U	2.3	U
BENZENE	1.2	U	0.95	U	0.94	UJ	1.1	U	1	U
BROMODICHLOROMETHANE	1.2	U	0.95	U	0.94	U	1.1	U	1	U
BROMOFORM	1.2	U	0.95	U	0.94	U	1.1	U	1	U
BROMOMETHANE	1.2	U	0.95	U	0.94	U	1.1	U	1	U
CARBON DISULFIDE	1.2	U	0.95	U	0.94	U	1.1	U	1	U
CARBON TETRACHLORIDE	1.2	U	0.95	U	0.94	U	1.1	U	1	U
CHLOROBENZENE	1.2	U	0.95	U	0.94	U	1.1	U	1	U
CHLORODIBROMOMETHANE	1.2	U	0.95	U	0.94	U	1.1	U	1	U
CHLOROETHANE	1.2	U	0.95	U	0.94	U	1.1	U	1	U
CHLOROFORM	1.2	U	0.95	U	0.94	U	1.1	U	1	U
CHLOROMETHANE	1.2	U	0.95	UJ	0.94	UJ	1.1	UJ	1	UJ
CIS-1,2-DICHLOROETHENE	2.9	J	0.95	U	0.94	U	1.1	U	1	U
CIS-1,3-DICHLOROPROPENE	1.2	U	0.95	U	0.94	U	1.1	U	1	U

CONFIRMATION S/ ANALYSIS RESULTS
SWMU 8 - B ING 106 POND
NSWC CRANE
CRANE, INDIANA

SAMPLE LOCATION / SAMPLE ID **SAMPLE DATE**	08SSW016 10/4/2007		08SSC001 11/12/2007		08SSC002 11/12/2007		08SSC003 11/12/2007		08SSC004 11/12/2007	
PARAMETER										
CYCLOHEXANE	1.2	U	0.95	U	0.94	U	1.1	U	1	U
DICHLORODIFLUOROMETHANE	1.2	U	0.95	U	0.94	U	1.1	U	1	U
ETHYLBENZENE	1.2	U	0.95	U	0.94	U	1.1	U	1	U
ISOPROPYLBENZENE	1.2	U	0.95	U	0.94	UJ	1.1	U	1	U
M+P-XYLENES	1.2	U	0.95	U	0.94	UJ	1.1	U	1	U
METHYL ACETATE	1.2	U	0.95	U	0.94	U	1.1	U	1	U
METHYL CYCLOHEXANE	1.2	U	0.95	U	0.94	U	1.1	U	1	U
METHYL TERT-BUTYL ETHER	1.2	U	0.95	U	0.94	U	1.1	U	1	U
METHYLENE CHLORIDE	1.2	UJ	0.95	U	0.94	U	1.1	U	1	U
O-XYLENE	1.2	U	0.95	U	0.94	UJ	1.1	U	1	U
STYRENE	1.2	U	0.95	U	0.94	UJ	1.1	U	1	U
TETRACHLOROETHENE	1.2	U	0.95	UJ	0.94	UJ	1.1	UJ	1	UJ
TOLUENE	1.2	U	0.95	U	0.94	U	1.1	U	1	U
TOTAL XYLENES	1.2	U	0.95	U	0.94	U	1.1	U	1	U
TRANS-1,2-DICHLOROETHENE	1.2	U	0.95	U	0.94	U	1.1	U	1	U
TRANS-1,3-DICHLOROPROPENE	1.2	U	0.95	U	0.94	U	1.1	U	1	U
TRICHLOROETHENE	1.2	U	0.95	U	0.94	U	1.1	U	1	U
TRICHLOROFLUOROMETHANE	1.2	U	0.95	U	0.94	U	1.1	U	1	U
VINYL CHLORIDE	1.2	U	0.95	U	0.94	U	1.1	U	1	U

SSW = surface soil from pond wall
SSC = surface soil from staging areas

Data Qualifiers:
J = estimated
U = non-detect

CONFIRMATION SAMPLE ANALYSIS RESULTS
SWMU 8 - BUILDING 106 POND
NSWC CRANE
CRANE, INDIANA

SAMPLE LOCATION / SAMPLE ID SAMPLE DATE	08SSC005 11/12/2007		08SSC006 11/12/2007	
PARAMETER				
1,1,1-TRICHLOROETHANE	1	U	0.88	U
1,1,2,2-TETRACHLOROETHANE	1	U	0.88	U
1,1,2-TRICHLOROETHANE	1	U	0.88	U
1,1,2-TRICHLOROTRIFLUOROETHANE	1	U	0.88	U
1,1-DICHLOROETHANE	1	U	0.88	U
1,1-DICHLOROETHENE	1	U	0.88	U
1,2,4-TRICHLOROBENZENE	1	U	0.88	U
1,2-DIBROMO-3-CHLOROPROPANE	1	U	0.88	U
1,2-DIBROMOETHANE	1	U	0.88	U
1,2-DICHLOROBENZENE	1	U	0.88	U
1,2-DICHLOROETHANE	1	U	0.88	U
1,2-DICHLOROPROPANE	1	U	0.88	U
1,3-DICHLOROBENZENE	1	U	0.88	U
1,4-DICHLOROBENZENE	1	U	0.88	U
2-BUTANONE	1	U	0.88	U
2-HEXANONE	1	U	0.88	U
4-METHYL-2-PENTANONE	1	U	0.88	U
ACETONE	2.4	U	1.6	U
BENZENE	1	U	0.88	U
BROMODICHLOROMETHANE	1	U	0.88	U
BROMOFORM	1	U	0.88	U
BROMOMETHANE	1	U	0.88	U
CARBON DISULFIDE	1	U	0.88	U
CARBON TETRACHLORIDE	1	U	0.88	U
CHLOROBENZENE	1	U	0.88	U
CHLORODIBROMOMETHANE	1	U	0.88	U
CHLOROETHANE	1	U	0.88	U
CHLOROFORM	1	U	0.88	U
CHLOROMETHANE	1	UJ	0.88	UJ
CIS-1,2-DICHLOROETHENE	1	U	0.88	U
CIS-1,3-DICHLOROPROPENE	1	U	0.88	U

CONFIRMATION SAMPLE ANALYSIS RESULTS
SWMU 8 - BUILDING 106 POND
NSWC CRANE
CRANE, INDIANA

SAMPLE LOCATION / SAMPLE ID **SAMPLE DATE**	08SSC005 11/12/2007		08SSC006 11/12/2007	
PARAMETER				
CYCLOHEXANE	1	U	0.88	U
DICHLORODIFLUOROMETHANE	1	U	0.88	U
ETHYLBENZENE	1	U	0.88	U
ISOPROPYLBENZENE	1	U	0.88	U
M+P-XYLENES	1	U	0.88	U
METHYL ACETATE	1	U	0.88	U
METHYL CYCLOHEXANE	1	U	0.88	U
METHYL TERT-BUTYL ETHER	1	U	0.88	U
METHYLENE CHLORIDE	1	U	0.88	U
O-XYLENE	1	U	0.88	U
STYRENE	1	U	0.88	U
TETRACHLOROETHENE	1	UJ	0.88	UJ
TOLUENE	1	U	0.88	U
TOTAL XYLENES	1	U	0.88	U
TRANS-1,2-DICHLOROETHENE	1	U	0.88	U
TRANS-1,3-DICHLOROPROPENE	1	U	0.88	U
TRICHLOROETHENE	1	U	0.88	U
TRICHLOROFLUOROMETHANE	1	U	0.88	U
VINYL CHLORIDE	1	U	0.88	U

SSW = surface soil from pond wall
SSC = surface soil from staging areas

Data Qualifiers:
J = estimated
U = non-detect

Tetra Tech NUS **INTERNAL CORRESPONDENCE**

TO:	**R. BASINSKI**	**DATE:**	**DECEMBER 14, 2007**
FROM:	**MATTHEW D. KRAUS**	**COPIES:**	**DV FILE**
SUBJECT:	**ORGANIC DATA VALIDATION – VOC NSWC CRANE – CTO 020 SDG – TT02001**		

SAMPLES: 17/Solid/

08FD10030701	08SSW001	08SSW002
08SSW003	08SSW004	08SSW005
08SSW006	08SSW007	08SSW008
08SSW009	08SSW010	08SSW011
08SSW012	08SSW013	08SSW014
08SSW015	08SSW016	

1/Aqueous/

08TB100407

Overview

The sample set for CTO 020, NSWC Crane, SDG: TT02001, consists of seventeen solid environmental samples and one aqueous trip blank. One field duplicate pair (08FD10030701 / 08SSW006) is included in this SDG.

All of the samples were analyzed for target compound list (TCL) volatile organic compounds (VOCs), collected by Tetra Tech NUS from October 3-4, 2007 and analyzed by Laucks Testing Laboratories, Inc. under Naval Facilities Engineering Service Center (NFESC) Quality Assurance/Quality Control (QA/QC) criteria. The VOC analyses were conducted in accordance with SW-846 method 8260B and gas chromatography/mass spectrometry (GC/MS) methodologies.

Data were evaluated based on the following parameters:

* • Data Completeness
* • Holding Times
* • GC/MS Instrument Tuning
• Initial and Continuing Calibration Recoveries
• Laboratory Method/Preparation Blank Analyses
• Surrogate Recoveries
* • Laboratory Control Sample Recoveries
• Matrix Spike Recoveries
• Internal Standards
• Field Duplicate Precision
* • Detection Limits
* • Compound Quantitation

* - All quality control criteria were met for this parameter.

Initial and Continuing Calibration Recoveries

The continuing calibration %Ds for 1,1,2-trichlorotrifluoroethane and methylene chloride were not within the ±20% quality control range on 10/09/07 at 07:54 on instrument 5973B affecting the original undiluted analysis of all samples. The affected positive and non-detected results reported for the aforementioned compounds were qualified as estimated, "J" or "UJ", respectively.

The continuing calibration %Ds for 1,1,2-trichlorotrifluoroethane and methylene chloride were not within the ±20% quality control range on 10/10/07 at 07:55 on instrument 5973B affecting all of the approximately 5X diluted analyses and re-analyses. The affected non-detected results reported for the aforementioned compounds were qualified as estimated, "UJ".

The continuing calibration %Ds of eleven compounds not within the ±20% quality control range on 10/15/07 at 08:21 affecting all of the samples analyzed at an approximately 2X dilution. No data was qualified because no data was reported from the ~ 2X diluted analyses.

Laboratory Method/Preparation Blank Analyses

The following contaminants were detected in the laboratory method/preparation blanks at the following maximum concentrations:

Analyte	Maximum Concentration	Action Level
Acetone [1]	2.60 µg/kg	26.0 µg/kg
Acetone [2]	4.90 µg/kg	49.0 µg/kg
Acetone [3]	1.90 µg/kg	19.0 µg/kg
Methylene Chloride [2]	2.80 µg/kg	28.0 µg/kg

[1] Maximum concentration found in the laboratory preparation blank run on 10/09/07 at 08:21 on instrument 5973B affecting the original undiluted analysis of all samples.

[2] Maximum concentration found in the laboratory preparation blank run on 10/10/07 at 08:21 on instrument 5973B affecting all of the approximately 5X diluted and re-analyses.

[3] Maximum concentration found in the laboratory preparation blank run on 10/015/07 at 08:54 on instrument 5973B affecting all of the approximately 2X diluted analyses.

An action level of 10X the maximum concentration was used to evaluate the sample data for blank contamination. Sample aliquot, percent solids, and dilution factors, if applicable, were taken into consideration when evaluating for blank contamination. Acetone and methylene chloride were qualified due to laboratory blank contamination.

Matrix Spike Recoveries

The matrix spike (MS) and matrix spike duplicate (MSD) %Rs for 1,1,1-trichloroethane, 1,2,4-trichlorobenzene, 1,2-dichlorobenzene, 1,3-dichlorobenzene, 1,4-dichlorobenzene, 2-hexanone, cis-1,2-dichloroethene, cis-1,3-dichloropropene, xylene, styrene and trichloroethene were less than respective quality control limits on 10/09/07 at 18:53 and 19:20, respectively, on instrument 5973B affecting sample 08SSW011. The positive and non-detected results reported for the aforementioned compounds in sample 08SSW011 were qualified as estimated, "J" or "UJ", respectively.

Internal Standards

The internal standard 1,4-dichlorobenzene-D4 yielded an area count less than the lower quality control limit for the original analysis of sample 08SSW003. All non-detected compound results associated with the 1,4-dichlorobenzene-D4 internal standard were qualified as estimated, "UJ".

Field Duplicate Precision

Field duplicate imprecision (RPD > 50%) was noted for 1,1-dichloroethane, 1,1,1-trichloroethane, trichloroethene, chloroethane and cis-1,2-dichloroethene for the field duplicate pair (08FD10030701 / 08SSW006). The positive results reported for 1,1-dichloroethane, 1,1,1-trichloroethane, trichloroethene, chloroethane and cis-1,2-dichloroethene were qualified as estimated, "J", for samples 08FD1003070 and 08SSW006.

Compound Reporting Selections

The original analysis of sample 08SSW003 yielded a cis-1,2-dichloroethene result which exceed the calibration range of the instrument. The sample was re-analyzed twice at approximately 2X and 5X dilutions. The cis-1,2-dichloroethene result for sample 08SSW003 was reported from the original analysis and qualified as estimated, "J", due to linear calibration range exceedance. The result from the original analysis was selected because of the non-linearity of the dilution analysis.

The original analysis of sample 08FD10030701 yielded cis-1,2-dichloroethene and 1,1,1-trichloroethene results which exceeded the calibration range of the instrumentation. The sample was re-analyzed at approximately 2X and 5X dilutions. The cis-1,2-dichloroethene and 1,1,1-trichloroethene results are reported from the original analysis and qualified as estimated, "J", due to calibration range exceedance. The original cis-1,2-dichloroethene and 1,1,1-trichloroethene results were chosen instead of the ~2X diluted analysis because the ~2X diluted analysis was performed near the VOC holding time expiration date and therefore sample integrity for that analysis is questionable compared to the original analysis.

The original analysis of sample 08SSW001 yielded cis-1,2-dichloroethene and 1,1,1-trichloroethene results which exceeded the calibration range of the instrumentation. The sample was re-analyzed at approximately 2X and 5X dilutions. Cis-1,2-dichloroethene and 1,1,1-trichloroethene results were reported from the ~ 5X dilution.

The original analysis of sample 08SSW004 yielded chloroethane, 1,1-dichloroethane, cis-1,2-dichloroethane, 1,1,1,-trichloroethane and trichloroethene results which exceeded the calibration range of the instrumentation. The sample was re-analyzed at approximately 2X and 5X dilutions. Chloroethane, 1,1-dichloroethane and 1,1,1-trichloroethane results were reported from the original analysis and qualified as estimated, "J", due to linear calibration range exceedance. Cis-1,2-dichloroethane and trichloroethene results were reported from the ~ 5X dilution.

Notes

Several results were qualified as estimated, "J", due to uncertainty near the detection limit.

The original analysis of sample 08SSW006 yielded noncompliant internal standard responses and a noncompliant surrogate recovery for toluene-d8. The sample was re-analyzed and all internal standard responses and surrogate recoveries were compliant for that re-analysis. Compound results are reported from the re-analysis of sample 08SSW006.

The original analyses of samples 08SSW008 and 08SSW013 yielded noncompliant internal standard responses. Both samples were re-analyzed yielding compliant internal standard responses. Compound results are reported from the re-analyses of samples 08SSW008 and 08SSW013.

The original analysis of sample 08SSW014 yielded a chloroethane result which exceeded the calibration range of the instrumentation. The sample was re-analyzed at approximately 2X and 5X dilutions. The chloroethane result was reported from the ~ 5X dilution (Form 1 = 08SSW014DL) because that analysis yielded a higher chloroethane result then the ~ 2X diluted analysis (Form 1 = 08SSW014DL2).

Three coolers were used to deliver the samples to the laboratory and upon receipt the temperatures of those coolers all exceeded the control limit of 4°C ± 2°C by a maximum of + 1.1°C (7.1°C). No adverse effect on the samples is expected.

The laboratory noted that the aqueous volatile trip blank contained a bubble greater than ¼ inch in size.

Executive Summary

Laboratory Performance: Acetone and methylene chloride were qualified due to laboratory blank contamination. Results reported for 1,1,2-trichloro-1,2,2-trifluoroethane and methylene chloride were qualified due to calibration noncompliance. Several compounds were qualified due to internal standard noncompliance.

Other Factors Affecting Data Quality: Several results were qualified due to uncertainty near the detection limit. Results reported for 1,1,1-trichloroethane, 1,2,4-trichlorobenzene, 1,2-dichlorobenzene, 1,3-dichlorobenzene, 1,4-dichlorobenzene, 2-hexanone, cis-1,2-dichloroethene, cis-1,3-dichloropropene and trichloroethene in sample 08SSW011 were qualified due to matrix spike noncompliance. Results reported for 1,1,1-trichloroethane, trichloroethene, 1,1-dichloroethane, cis-1,2-dichloroethene, and chloroethane were qualified due to field duplicate imprecision.

The data for these analyses were reviewed with reference to the "USEPA Contract Laboratory Program (CLP) National Functional Guidelines for Organic Review", October 1999, and the (DOD) QSM document entitled "Quality Systems Manual (QSM) for Environmental Laboratories", January 2006.

The text of this report has been formulated to address only those problem areas affecting data quality.

"I attest that the data referenced herein were validated according to the agreed upon validation criteria as specified in the (DOD) QSM Guidelines and the Quality Assurance Project Plan (QAPP)."

Tetra Tech NUS
Matthew D. Kraus
Environmental Chemist

Tetra Tech NUS
Joseph A. Samchuck
Quality Assurance Officer
Attachments:

1. Appendix A - Qualified Analytical Results
2. Appendix B - Results as reported by the Laboratory
3. Appendix C – 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 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: 00352

SDG: TT02001 MEDIA: WATER DATA FRACTION: OV

nsample	08TB100407	nsample	08TB100407
samp_date	10/4/2007 12:00:00 PM	samp_date	10/4/2007 12:00:00 PM
lab_id	TT02001-018	lab_id	TT02001-018
qc_type	NM	qc_type	NM
units	UG/L	units	UG/L
Pct_Solids		Pct_Solids	
DUP_OF:		DUP_OF:	

Parameter	Result	Val Qual	Qual Code
1,1,1-TRICHLOROETHANE	1.0	U	
1,1,2,2-TETRACHLOROETHANE	1.0	U	
1,1,2-TRICHLOROETHANE	1.0	U	
1,1,2-TRICHLOROTRIFLUOROETHANE	1.0	UJ	C
1,1-DICHLOROETHANE	1.0	U	
1,1-DICHLOROETHENE	1.0	U	
1,2,4-TRICHLOROBENZENE	1.0	U	
1,2-DIBROMO-3-CHLOROPROPANE	1.0	U	
1,2-DIBROMOETHANE	1.0	U	
1,2-DICHLOROBENZENE	1.0	U	
1,2-DICHLOROETHANE	1.0	U	
1,2-DICHLOROPROPANE	1.0	U	
1,3-DICHLOROBENZENE	1.0	U	
1,4-DICHLOROBENZENE	1.0	U	
2-BUTANONE	1.0	U	
2-HEXANONE	1.0	U	
4-METHYL-2-PENTANONE	1.0	U	
ACETONE	6.4		
BENZENE	1.0	U	
BROMODICHLOROMETHANE	1.0	U	
BROMOFORM	1.0	U	
BROMOMETHANE	1.0	U	
CARBON DISULFIDE	1.0	U	
CARBON TETRACHLORIDE	1.0	U	
CHLOROBENZENE	1.0	U	
CHLORODIBROMOMETHANE	1.0	U	
CHLOROETHANE	1.0	U	
CHLOROFORM	1.0	U	
CHLOROMETHANE	1.0	U	
CIS-1,2-DICHLOROETHENE	1.0	U	
CIS-1,3-DICHLOROPROPENE	1.0	U	
CYCLOHEXANE	1.0	U	

Parameter	Result	Val Qual	Qual Code
DICHLORODIFLUOROMETHANE	1.0	U	
ETHYLBENZENE	1.0	U	
ISOPROPYLBENZENE	1.0	U	
M+P-XYLENES	1.0	U	
METHYL ACETATE	1.0	U	
METHYL CYCLOHEXANE	1.0	U	
METHYL TERT-BUTYL ETHER	1.0	U	
METHYLENE CHLORIDE	16	J	C
O-XYLENE	1.0	U	
STYRENE	1.0	U	
TETRACHLOROETHENE	1.0	U	
TOLUENE	1.0	U	
TOTAL XYLENES	1.0	U	
TRANS-1,2-DICHLOROETHENE	1.0	U	
TRANS-1,3-DICHLOROPROPENE	1.0	U	
TRICHLOROETHENE	1.0	U	
TRICHLOROFLUOROMETHANE	1.0	U	
VINYL CHLORIDE	1.0	U	

PROJ_ 00352

SDG: TT02001 MEDIA: SOIL DATA FRACTION: OV

nsample	08FD10030701	nsample	08FD10030701	nsample	08SSW001
samp_date	10/3/2007	samp_date	10/3/2007	samp_date	10/3/2007 12:50:00 PM
lab_id	TT02001-014	lab_id	TT02001-014	lab_id	TT02001-001
qc_type	NM	qc_type	NM	qc_type	NM
units	UG/KG	units	UG/KG	units	UG/KG
Pct_Solids	80.0	Pct_Solids	80.0	Pct_Solids	79.0
DUP_OF:		DUP_OF:		DUP_OF:	

Parameter	Result	Val Qual	Qual Code
1,1,1-TRICHLOROETHANE	340	J	GL
1,1,2,2-TETRACHLOROETHANE	1.2	U	
1,1,2-TRICHLOROETHANE	1.2	U	
1,1,2-TRICHLOROTRIFLUOROETHANE	1.2	UJ	C
1,1-DICHLOROETHANE	87	J	G
1,1-DICHLOROETHENE	2.0	J	P
1,2,4-TRICHLOROBENZENE	1.2	U	
1,2-DIBROMO-3-CHLOROPROPANE	1.2	U	
1,2-DIBROMOETHANE	1.2	U	
1,2-DICHLOROBENZENE	1.2	U	
1,2-DICHLOROETHANE	1.2	U	
1,2-DICHLOROPROPANE	1.2	U	
1,3-DICHLOROBENZENE	1.2	U	
1,4-DICHLOROBENZENE	1.2	U	
2-BUTANONE	1.2	U	
2-HEXANONE	1.2	U	
4-METHYL-2-PENTANONE	1.2	U	
ACETONE	4.5	U	A
BENZENE	1.2	U	
BROMODICHLOROMETHANE	1.2	U	
BROMOFORM	1.2	U	
BROMOMETHANE	1.2	U	
CARBON DISULFIDE	1.2	U	
CARBON TETRACHLORIDE	1.2	U	
CHLOROBENZENE	1.2	U	
CHLORODIBROMOMETHANE	1.2	U	
CHLOROETHANE	12	J	G
CHLOROFORM	1.2	U	
CHLOROMETHANE	1.2	U	
CIS-1,2-DICHLOROETHENE	250	J	GL
CIS-1,3-DICHLOROPROPENE	1.2	U	
CYCLOHEXANE	1.2	U	

Parameter	Result	Val Qual	Qual Code
DICHLORODIFLUOROMETHANE	1.2	U	
ETHYLBENZENE	1.2	U	
ISOPROPYLBENZENE	1.2	U	
M+P-XYLENES	1.2	U	
METHYL ACETATE	1.2	U	
METHYL CYCLOHEXANE	1.2	U	
METHYL TERT-BUTYL ETHER	1.2	U	
METHYLENE CHLORIDE	1.2	UJ	C
O-XYLENE	1.2	U	
STYRENE	1.2	U	
TETRACHLOROETHENE	1.2	U	
TOLUENE	4.9		
TOTAL XYLENES	1.2	U	
TRANS-1,2-DICHLOROETHENE	1.2	U	
TRANS-1,3-DICHLOROPROPENE	1.2	U	
TRICHLOROETHENE	5.1	J	G
TRICHLOROFLUOROMETHANE	1.2	U	
VINYL CHLORIDE	1.2	U	

Parameter	Result	Val Qual	Qual Code
1,1,2,2-TETRACHLOROETHANE	1.1	U	
1,1,2-TRICHLOROETHANE	1.1	U	
1,1,2-TRICHLOROTRIFLUOROETHANE	1.1	UJ	C
1,1-DICHLOROETHANE	150		
1,1-DICHLOROETHENE	3.1	J	P
1,2,4-TRICHLOROBENZENE	1.1	U	
1,2-DIBROMO-3-CHLOROPROPANE	1.1	U	
1,2-DIBROMOETHANE	1.1	U	
1,2-DICHLOROBENZENE	1.1	U	
1,2-DICHLOROETHANE	1.1	U	
1,2-DICHLOROPROPANE	1.1	U	
1,3-DICHLOROBENZENE	1.1	U	
1,4-DICHLOROBENZENE	1.1	U	
2-BUTANONE	1.1	U	
2-HEXANONE	1.1	U	
4-METHYL-2-PENTANONE	1.1	U	
ACETONE	4.1	U	A
BENZENE	1.1	U	
BROMODICHLOROMETHANE	1.1	U	
BROMOFORM	1.1	U	
BROMOMETHANE	1.1	U	
CARBON DISULFIDE	1.1	U	
CARBON TETRACHLORIDE	1.1	U	
CHLOROBENZENE	1.1	U	
CHLORODIBROMOMETHANE	1.1	U	
CHLOROETHANE	3.8		
CHLOROFORM	1.1	U	
CHLOROMETHANE	1.1	U	
CIS-1,3-DICHLOROPROPENE	1.1	U	
CYCLOHEXANE	1.1	U	
DICHLORODIFLUOROMETHANE	1.1	U	
ETHYLBENZENE	1.1	U	

PROJ_NO: 00352

SDG: TT02001 MEDIA: SOIL DATA FRACTION: OV

nsample	08SSW001	nsample	08SSW001DL	nsample	08SSW002
samp_date	10/3/2007 12:50:00 PM	samp_date	10/3/2007 12:50:00 PM	samp_date	10/3/2007 12:58:00 PM
lab_id	TT02001-001	lab_id	TT02001-001DL	lab_id	TT02001-002
qc_type	NM	qc_type	NM	qc_type	NM
units	UG/KG	units	UG/KG	units	UG/KG
Pct_Solids	79.0	Pct_Solids	79.0	Pct_Solids	83.0
DUP_OF:		DUP_OF:		DUP_OF:	

Parameter	Result	Val Qual	Qual Code
ISOPROPYLBENZENE	1.1	U	
M+P-XYLENES	1.1	U	
METHYL ACETATE	1.1	U	
METHYL CYCLOHEXANE	1.1	U	
METHYL TERT-BUTYL ETHER	1.1	U	
METHYLENE CHLORIDE	1.1	UJ	C
O-XYLENE	1.1	U	
STYRENE	1.1	U	
TETRACHLOROETHENE	1.1	U	
TOLUENE	1.1	U	
TOTAL XYLENES	1.1	U	
TRANS-1,2-DICHLOROETHENE	1.1	U	
TRANS-1,3-DICHLOROPROPENE	1.1	U	
TRICHLOROETHENE	12		
TRICHLOROFLUOROMETHANE	1.1	U	
VINYL CHLORIDE	1.1	U	

Parameter	Result	Val Qual	Qual Code
1,1,1-TRICHLOROETHANE	87		
CIS-1,2-DICHLOROETHENE	220		

Parameter	Result	Val Qual	Qual Code
1,1,1-TRICHLOROETHANE	1.0	U	
1,1,2,2-TETRACHLOROETHANE	1.0	U	
1,1,2-TRICHLOROETHANE	1.0	U	
1,1,2-TRICHLOROTRIFLUOROETHANE	1.0	UJ	C
1,1-DICHLOROETHANE	32		
1,1-DICHLOROETHENE	1.0	U	
1,2,4-TRICHLOROBENZENE	1.0	U	
1,2-DIBROMO-3-CHLOROPROPANE	1.0	U	
1,2-DIBROMOETHANE	1.0	U	
1,2-DICHLOROBENZENE	1.0	U	
1,2-DICHLOROETHANE	1.0	U	
1,2-DICHLOROPROPANE	1.0	U	
1,3-DICHLOROBENZENE	1.0	U	
1,4-DICHLOROBENZENE	1.0	U	
2-BUTANONE	1.0	U	
2-HEXANONE	1.0	U	
4-METHYL-2-PENTANONE	1.0	U	
ACETONE	9.0	U	A
BENZENE	1.0	U	
BROMODICHLOROMETHANE	1.0	U	
BROMOFORM	1.0	U	
BROMOMETHANE	1.0	U	
CARBON DISULFIDE	1.0	U	
CARBON TETRACHLORIDE	1.0	U	
CHLOROBENZENE	1.0	U	
CHLORODIBROMOMETHANE	1.0	U	
CHLOROETHANE	97		
CHLOROFORM	1.0	U	
CHLOROMETHANE	1.0	U	
CIS-1,2-DICHLOROETHENE	5.5		
CIS-1,3-DICHLOROPROPENE	1.0	U	
CYCLOHEXANE	1.0	U	

nsample	08SSW002
samp_date	10/3/2007 12:58:00 PM
lab_Id	TT02001-002
qc_type	NM
units	UG/KG
Pct_Solids	83.0
DUP_OF:	

Parameter	Result	Val Qual	Qual Code
DICHLORODIFLUOROMETHANE	1.0	U	
ETHYLBENZENE	1.0	U	
ISOPROPYLBENZENE	1.0	U	
M+P-XYLENES	1.0	U	
METHYL ACETATE	1.0	U	
METHYL CYCLOHEXANE	1.0	U	
METHYL TERT-BUTYL ETHER	1.0	U	
METHYLENE CHLORIDE	1.0	UJ	C
O-XYLENE	1.0	U	
STYRENE	1.0	U	
TETRACHLOROETHENE	1.0	U	
TOLUENE	1.0	U	
TOTAL XYLENES	1.0	U	
TRANS-1,2-DICHLOROETHENE	1.0	U	
TRANS-1,3-DICHLOROPROPENE	1.0	U	
TRICHLOROETHENE	1.0	U	
TRICHLOROFLUOROMETHANE	1.0	U	
VINYL CHLORIDE	3.0	J	P

nsample	08SSW003
samp_date	10/3/2007 1:05:00 PM
lab_id	TT02001-003
qc_type	NM
units	UG/KG
Pct_Solids	82.0
DUP_OF:	

Parameter	Result	Val Qual	Qual Code
1,1,1-TRICHLOROETHANE	41		
1,1,2,2-TETRACHLOROETHANE	1.0	UJ	N
1,1,2-TRICHLOROETHANE	1.0	U	
1,1,2-TRICHLOROTRIFLUOROETHANE	1.0	UJ	C
1,1-DICHLOROETHANE	84		
1,1-DICHLOROETHENE	1.0	U	
1,2,4-TRICHLOROBENZENE	1.0	UJ	N
1,2-DIBROMO-3-CHLOROPROPANE	1.0	UJ	N
1,2-DIBROMOETHANE	1.0	U	
1,2-DICHLOROBENZENE	1.0	UJ	N
1,2-DICHLOROETHANE	1.0	U	
1,2-DICHLOROPROPANE	1.0	U	
1,3-DICHLOROBENZENE	1.0	UJ	N
1,4-DICHLOROBENZENE	1.0	UJ	N
2-BUTANONE	1.0	U	
2-HEXANONE	1.0	U	
4-METHYL-2-PENTANONE	1.0	U	
ACETONE	7.0	U	A
BENZENE	1.0	U	
BROMODICHLOROMETHANE	1.0	U	
BROMOFORM	1.0	U	
BROMOMETHANE	1.0	U	
CARBON DISULFIDE	1.0	U	
CARBON TETRACHLORIDE	1.0	U	
CHLOROBENZENE	1.0	U	
CHLORODIBROMOMETHANE	1.0	U	
CHLOROETHANE	14		
CHLOROFORM	1.0	U	
CHLOROMETHANE	1.0	U	
CIS-1,2-DICHLOROETHENE	390	J	L
CIS-1,3-DICHLOROPROPENE	1.0	U	
CYCLOHEXANE	1.0	U	

nsample	08SSW003
samp_date	10/3/2007 1:05:00 PM
lab_id	TT02001-003
qc_type	NM
units	UG/KG
Pct_Solids	82.0
DUP_OF:	

Parameter	Result	Val Qual	Qual Code
DICHLORODIFLUOROMETHANE	1.0	U	
ETHYLBENZENE	1.0	U	
ISOPROPYLBENZENE	1.0	U	
M+P-XYLENES	1.0	U	
METHYL ACETATE	1.0	U	
METHYL CYCLOHEXANE	1.0	U	
METHYL TERT-BUTYL ETHER	1.0	U	
METHYLENE CHLORIDE	1.0	UJ	C
O-XYLENE	1.0	U	
STYRENE	1.0	U	
TETRACHLOROETHENE	1.0	U	
TOLUENE	1.0	U	
TOTAL XYLENES	1.0	U	
TRANS-1,2-DICHLOROETHENE	1.0	U	
TRANS-1,3-DICHLOROPROPENE	1.0	U	
TRICHLOROETHENE	6.9		
TRICHLOROFLUOROMETHANE	1.0	U	
VINYL CHLORIDE	1.0	U	

PROJ_NO: 00352

SDG: TT02001 MEDIA: SOIL DATA FRACTION: OV

nsample	08SSW004	nsample	08SSW004	nsample	08SSW004DL
samp_date	10/3/2007 1:15:00 PM	samp_date	10/3/2007 1:15:00 PM	samp_date	10/3/2007 1:15:00 PM
lab_id	TT02001-004	lab_id	TT02001-004	lab_id	TT02001-004DL
qc_type	NM	qc_type	NM	qc_type	NM
units	UG/KG	units	UG/KG	units	UG/KG
Pct_Solids	85.0	Pct_Solids	85.0	Pct_Solids	85.0
DUP_OF:		DUP_OF:		DUP_OF:	

Parameter	Result	Val Qual	Qual Code
1,1,1-TRICHLOROETHANE	260	J	L
1,1,2,2-TETRACHLOROETHANE	1.0	U	
1,1,2-TRICHLOROETHANE	1.0	U	
1,1,2-TRICHLOROTRIFLUOROETHANE	1.0	UJ	C
1,1-DICHLOROETHANE	230	J	L
1,1-DICHLOROETHENE	3.3		
1,2,4-TRICHLOROBENZENE	1.0	U	
1,2-DIBROMO-3-CHLOROPROPANE	1.0	U	
1,2-DIBROMOETHANE	1.0	U	
1,2-DICHLOROBENZENE	1.0	U	
1,2-DICHLOROETHANE	1.0	U	
1,2-DICHLOROPROPANE	1.0	U	
1,3-DICHLOROBENZENE	1.0	U	
1,4-DICHLOROBENZENE	1.0	U	
2-BUTANONE	5.5	J	P
2-HEXANONE	1.0	U	
4-METHYL-2-PENTANONE	1.0	U	
ACETONE	28	U	A
BENZENE	1.0	U	
BROMODICHLOROMETHANE	1.0	U	
BROMOFORM	1.0	U	
BROMOMETHANE	1.0	U	
CARBON DISULFIDE	1.0	U	
CARBON TETRACHLORIDE	1.0	U	
CHLOROBENZENE	1.0	U	
CHLORODIBROMOMETHANE	1.0	U	
CHLOROETHANE	340	J	L
CHLOROFORM	1.0	U	
CHLOROMETHANE	1.0	U	
CIS-1,3-DICHLOROPROPENE	1.0	U	
CYCLOHEXANE	1.8	J	P
DICHLORODIFLUOROMETHANE	1.0	U	

Parameter	Result	Val Qual	Qual Code
ETHYLBENZENE	2.1	J	P
ISOPROPYLBENZENE	2.1	J	P
M+P-XYLENES	9.4		
METHYL ACETATE	1.0	U	
METHYL CYCLOHEXANE	7.7		
METHYL TERT-BUTYL ETHER	1.0	U	
METHYLENE CHLORIDE	1.0	UJ	C
O-XYLENE	5.0		
STYRENE	1.0	U	
TETRACHLOROETHENE	15		
TOLUENE	5.3		
TOTAL XYLENES	14		
TRANS-1,2-DICHLOROETHENE	9.1		
TRANS-1,3-DICHLOROPROPENE	1.0	U	
TRICHLOROFLUOROMETHANE	1.0	U	
VINYL CHLORIDE	74		

Parameter	Result	Val Qual	Qual Code
CIS-1,2-DICHLOROETHENE	240		
TRICHLOROETHENE	550		

nsample	08SSW005	nsample	08SSW005	nsample	08SSW006RE
samp_date	10/3/2007 1:25:00 PM	samp_date	10/3/2007 1:25:00 PM	samp_date	10/3/2007 1:30:00 PM
lab_id	TT02001-005	lab_id	TT02001-005	lab_id	TT02001-006RE
qc_type	NM	qc_type	NM	qc_type	NM
units	UG/KG	units	UG/KG	units	UG/KG
Pct_Solids	83.0	Pct_Solids	83.0	Pct_Solids	82.0
DUP_OF:		DUP_OF:		DUP_OF:	

Parameter	Result	Val Qual	Qual Code
1,1,1-TRICHLOROETHANE	1.1	U	
1,1,2,2-TETRACHLOROETHANE	1.1	U	
1,1,2-TRICHLOROETHANE	1.1	U	
1,1,2-TRICHLOROTRIFLUOROETHANE	1.1	UJ	C
1,1-DICHLOROETHANE	4.6		
1,1-DICHLOROETHENE	1.1	U	
1,2,4-TRICHLOROBENZENE	1.1	U	
1,2-DIBROMO-3-CHLOROPROPANE	1.1	U	
1,2-DIBROMOETHANE	1.1	U	
1,2-DICHLOROBENZENE	1.1	U	
1,2-DICHLOROETHANE	1.1	U	
1,2-DICHLOROPROPANE	1.1	U	
1,3-DICHLOROBENZENE	1.1	U	
1,4-DICHLOROBENZENE	1.1	U	
2-BUTANONE	1.1	U	
2-HEXANONE	1.1	U	
4-METHYL-2-PENTANONE	1.1	U	
ACETONE	16	U	A
BENZENE	1.1	U	
BROMODICHLOROMETHANE	1.1	U	
BROMOFORM	1.1	U	
BROMOMETHANE	1.1	U	
CARBON DISULFIDE	1.1	U	
CARBON TETRACHLORIDE	1.1	U	
CHLOROBENZENE	1.1	U	
CHLORODIBROMOMETHANE	1.1	U	
CHLOROETHANE	10		
CHLOROFORM	1.1	U	
CHLOROMETHANE	1.1	U	
CIS-1,2-DICHLOROETHENE	2.1	J	P
CIS-1,3-DICHLOROPROPENE	1.1	U	
CYCLOHEXANE	1.1	U	

Parameter	Result	Val Qual	Qual Code
DICHLORODIFLUOROMETHANE	1.1	U	
ETHYLBENZENE	1.1	U	
ISOPROPYLBENZENE	1.1	U	
M+P-XYLENES	1.1	U	
METHYL ACETATE	1.1	U	
METHYL CYCLOHEXANE	1.1	U	
METHYL TERT-BUTYL ETHER	1.1	U	
METHYLENE CHLORIDE	1.1	UJ	C
O-XYLENE	1.1	U	
STYRENE	1.1	U	
TETRACHLOROETHENE	1.1	U	
TOLUENE	1.1	U	
TOTAL XYLENES	1.1	U	
TRANS-1,2-DICHLOROETHENE	1.1	U	
TRANS-1,3-DICHLOROPROPENE	1.1	U	
TRICHLOROETHENE	2.0	J	P
TRICHLOROFLUOROMETHANE	1.1	U	
VINYL CHLORIDE	1.1	U	

Parameter	Result	Val Qual	Qual Code
1,1,1-TRICHLOROETHANE	13	J	G
1,1,2,2-TETRACHLOROETHANE	1.7	U	
1,1,2-TRICHLOROETHANE	1.7	U	
1,1,2-TRICHLOROTRIFLUOROETHANE	1.7	UJ	C
1,1-DICHLOROETHANE	8.2	J	G
1,1-DICHLOROETHENE	1.7	U	
1,2,4-TRICHLOROBENZENE	1.7	U	
1,2-DIBROMO-3-CHLOROPROPANE	1.7	U	
1,2-DIBROMOETHANE	1.7	U	
1,2-DICHLOROBENZENE	1.7	U	
1,2-DICHLOROETHANE	1.7	U	
1,2-DICHLOROPROPANE	1.7	U	
1,3-DICHLOROBENZENE	1.7	U	
1,4-DICHLOROBENZENE	1.7	U	
2-BUTANONE	1.7	U	
2-HEXANONE	1.7	U	
4-METHYL-2-PENTANONE	1.7	U	
ACETONE	12	U	A
BENZENE	1.7	U	
BROMODICHLOROMETHANE	1.7	U	
BROMOFORM	1.7	U	
BROMOMETHANE	1.7	U	
CARBON DISULFIDE	1.7	U	
CARBON TETRACHLORIDE	1.7	U	
CHLOROBENZENE	1.7	U	
CHLORODIBROMOMETHANE	1.7	U	
CHLOROETHANE	4.8	J	PG
CHLOROFORM	1.7	U	
CHLOROMETHANE	1.7	U	
CIS-1,2-DICHLOROETHENE	13	J	G
CIS-1,3-DICHLOROPROPENE	1.7	U	
CYCLOHEXANE	1.7	U	

PROJ_NO: 00352

SDG: TT02001 MEDIA: SOIL DATA FRACTION: OV

nsample	08SSW006RE
samp_date	10/3/2007 1:30:00 PM
lab_id	TT02001-006RE
qc_type	NM
units	UG/KG
Pct_Solids	82.0
DUP_OF:	

Parameter	Result	Val Qual	Qual Code
DICHLORODIFLUOROMETHANE	1.7	U	
ETHYLBENZENE	1.7	U	
ISOPROPYLBENZENE	1.7	U	
M+P-XYLENES	1.7	U	
METHYL ACETATE	1.7	U	
METHYL CYCLOHEXANE	1.7	U	
METHYL TERT-BUTYL ETHER	1.7	U	
METHYLENE CHLORIDE	24	U	A
O-XYLENE	1.7	U	
STYRENE	1.7	U	
TETRACHLOROETHENE	1.7	U	
TOLUENE	1.7	U	
TOTAL XYLENES	1.7	U	
TRANS-1,2-DICHLOROETHENE	1.7	U	
TRANS-1,3-DICHLOROPROPENE	1.7	U	
TRICHLOROETHENE	2.1	J	GP
TRICHLOROFLUOROMETHANE	1.7	U	
VINYL CHLORIDE	1.7	U	

nsample	08SSW007
samp_date	10/3/2007 1:46:00 PM
lab_id	TT02001-007
qc_type	NM
units	UG/KG
Pct_Solids	74.0
DUP_OF:	

Parameter	Result	Val Qual	Qual Code
1,1,1-TRICHLOROETHANE	7.1		
1,1,2,2-TETRACHLOROETHANE	1.3	U	
1,1,2-TRICHLOROETHANE	1.3	U	
1,1,2-TRICHLOROTRIFLUOROETHANE	1.3	UJ	C
1,1-DICHLOROETHANE	1.3	U	
1,1-DICHLOROETHENE	1.3	U	
1,2,4-TRICHLOROBENZENE	1.3	U	
1,2-DIBROMO-3-CHLOROPROPANE	1.3	U	
1,2-DIBROMOETHANE	1.3	U	
1,2-DICHLOROBENZENE	1.3	U	
1,2-DICHLOROETHANE	1.3	U	
1,2-DICHLOROPROPANE	1.3	U	
1,3-DICHLOROBENZENE	1.3	U	
1,4-DICHLOROBENZENE	1.3	U	
2-BUTANONE	1.3	U	
2-HEXANONE	1.3	U	
4-METHYL-2-PENTANONE	1.3	U	
ACETONE	4.6	U	A
BENZENE	1.3	U	
BROMODICHLOROMETHANE	1.3	U	
BROMOFORM	1.3	U	
BROMOMETHANE	1.3	U	
CARBON DISULFIDE	1.3	U	
CARBON TETRACHLORIDE	1.3	U	
CHLOROBENZENE	1.3	U	
CHLORODIBROMOMETHANE	1.3	U	
CHLOROETHANE	1.3	U	
CHLOROFORM	1.3	U	
CHLOROMETHANE	1.3	U	
CIS-1,2-DICHLOROETHENE	5.0		
CIS-1,3-DICHLOROPROPENE	1.3	U	
CYCLOHEXANE	1.3	U	

nsample	08SSW007
samp_date	10/3/2007 1:46:00 PM
lab_id	TT02001-007
qc_type	NM
units	UG/KG
Pct_Solids	74.0
DUP_OF:	

Parameter	Result	Val Qual	Qual Code
DICHLORODIFLUOROMETHANE	1.3	U	
ETHYLBENZENE	1.3	U	
ISOPROPYLBENZENE	1.3	U	
M+P-XYLENES	1.3	U	
METHYL ACETATE	1.3	U	
METHYL CYCLOHEXANE	1.3	U	
METHYL TERT-BUTYL ETHER	1.3	U	
METHYLENE CHLORIDE	1.3	UJ	C
O-XYLENE	1.3	U	
STYRENE	1.3	U	
TETRACHLOROETHENE	1.3	U	
TOLUENE	1.3	U	
TOTAL XYLENES	1.3	U	
TRANS-1,2-DICHLOROETHENE	1.3	U	
TRANS-1,3-DICHLOROPROPENE	1.3	U	
TRICHLOROETHENE	7.5		
TRICHLOROFLUOROMETHANE	1.3	U	
VINYL CHLORIDE	1.3	U	

nsample	08SSW008RE	nsample	08SSW008RE	nsample	08SSW009
samp_date	10/3/2007 1:52:00 PM	samp_date	10/3/2007 1:52:00 PM	samp_date	10/3/2007 2:00:00 PM
lab_id	TT02001-008RE	lab_id	TT02001-008RE	lab_id	TT02001-009
qc_type	NM	qc_type	NM	qc_type	NM
units	UG/KG	units	UG/KG	units	UG/KG
Pct_Solids	80.0	Pct_Solids	80.0	Pct_Solids	86.0
DUP_OF:		DUP_OF:		DUP_OF:	

Parameter	Result	Val Qual	Qual Code
1,1,1-TRICHLOROETHANE	2.8	J	P
1,1,2,2-TETRACHLOROETHANE	1.1	U	
1,1,2-TRICHLOROETHANE	1.1	U	
1,1,2-TRICHLOROTRIFLUOROETHANE	1.1	UJ	C
1,1-DICHLOROETHANE	1.1	U	
1,1-DICHLOROETHENE	1.1	U	
1,2,4-TRICHLOROBENZENE	1.1	U	
1,2-DIBROMO-3-CHLOROPROPANE	1.1	U	
1,2-DIBROMOETHANE	1.1	U	
1,2-DICHLOROBENZENE	1.1	U	
1,2-DICHLOROETHANE	1.1	U	
1,2-DICHLOROPROPANE	1.1	U	
1,3-DICHLOROBENZENE	1.1	U	
1,4-DICHLOROBENZENE	1.1	U	
2-BUTANONE	1.1	U	
2-HEXANONE	1.1	U	
4-METHYL-2-PENTANONE	1.1	U	
ACETONE	5.8	U	A
BENZENE	1.1	U	
BROMODICHLOROMETHANE	1.1	U	
BROMOFORM	1.1	U	
BROMOMETHANE	1.1	U	
CARBON DISULFIDE	1.1	U	
CARBON TETRACHLORIDE	1.1	U	
CHLOROBENZENE	1.1	U	
CHLORODIBROMOMETHANE	1.1	U	
CHLOROETHANE	1.1	U	
CHLOROFORM	1.1	U	
CHLOROMETHANE	1.1	U	
CIS-1,2-DICHLOROETHENE	1.3	J	P
CIS-1,3-DICHLOROPROPENE	1.1	U	
CYCLOHEXANE	1.1	U	

Parameter	Result	Val Qual	Qual Code
DICHLORODIFLUOROMETHANE	1.1	U	
ETHYLBENZENE	1.1	U	
ISOPROPYLBENZENE	1.1	U	
M+P-XYLENES	1.1	U	
METHYL ACETATE	1.1	U	
METHYL CYCLOHEXANE	1.1	U	
METHYL TERT-BUTYL ETHER	1.1	U	
METHYLENE CHLORIDE	22	U	A
O-XYLENE	1.1	U	
STYRENE	1.1	U	
TETRACHLOROETHENE	1.1	U	
TOLUENE	1.1	U	
TOTAL XYLENES	1.1	U	
TRANS-1,2-DICHLOROETHENE	1.1	U	
TRANS-1,3-DICHLOROPROPENE	1.1	U	
TRICHLOROETHENE	5.9		
TRICHLOROFLUOROMETHANE	1.1	U	
VINYL CHLORIDE	1.1	U	

Parameter	Result	Val Qual	Qual Code
1,1,1-TRICHLOROETHANE	99		
1,1,2,2-TETRACHLOROETHANE	0.96	U	
1,1,2-TRICHLOROETHANE	0.96	U	
1,1,2-TRICHLOROTRIFLUOROETHANE	0.96	UJ	C
1,1-DICHLOROETHANE	11		
1,1-DICHLOROETHENE	0.96	U	
1,2,4-TRICHLOROBENZENE	0.96	U	
1,2-DIBROMO-3-CHLOROPROPANE	0.96	U	
1,2-DIBROMOETHANE	0.96	U	
1,2-DICHLOROBENZENE	0.96	U	
1,2-DICHLOROETHANE	0.96	U	
1,2-DICHLOROPROPANE	0.96	U	
1,3-DICHLOROBENZENE	0.96	U	
1,4-DICHLOROBENZENE	0.96	U	
2-BUTANONE	0.96	U	
2-HEXANONE	0.96	U	
4-METHYL-2-PENTANONE	0.96	U	
ACETONE	11	U	A
BENZENE	0.96	U	
BROMODICHLOROMETHANE	0.96	U	
BROMOFORM	0.96	U	
BROMOMETHANE	0.96	U	
CARBON DISULFIDE	0.96	U	
CARBON TETRACHLORIDE	0.96	U	
CHLOROBENZENE	0.96	U	
CHLORODIBROMOMETHANE	0.96	U	
CHLOROETHANE	0.96	U	
CHLOROFORM	0.96	U	
CHLOROMETHANE	0.96	U	
CIS-1,2-DICHLOROETHENE	87		
CIS-1,3-DICHLOROPROPENE	0.96	U	
CYCLOHEXANE	0.96	U	

PROJ_NO: 00352

SDG: TT02001 MEDIA: SOIL DATA FRACTION: OV

nsample	08SSW009
samp_date	10/3/2007 2:00:00 PM
lab_id	TT02001-009
qc_type	NM
units	UG/KG
Pct_Solids	86.0
DUP_OF:	

Parameter	Result	Val Qual	Qual Code
DICHLORODIFLUOROMETHANE	0.96	U	
ETHYLBENZENE	0.96	U	
ISOPROPYLBENZENE	0.96	U	
M+P-XYLENES	0.96	U	
METHYL ACETATE	0.96	U	
METHYL CYCLOHEXANE	0.96	U	
METHYL TERT-BUTYL ETHER	0.96	U	
METHYLENE CHLORIDE	0.96	UJ	C
O-XYLENE	0.96	U	
STYRENE	0.96	U	
TETRACHLOROETHENE	0.96	U	
TOLUENE	0.96	U	
TOTAL XYLENES	0.96	U	
TRANS-1,2-DICHLOROETHENE	0.96	U	
TRANS-1,3-DICHLOROPROPENE	0.96	U	
TRICHLOROETHENE	150		
TRICHLOROFLUOROMETHANE	0.96	U	
VINYL CHLORIDE	0.96	U	

nsample	08SSW010
samp_date	10/3/2007 2:04:00 PM
lab_id	TT02001-010
qc_type	NM
units	UG/KG
Pct_Solids	87.0
DUP_OF:	

Parameter	Result	Val Qual	Qual Code
1,1,1-TRICHLOROETHANE	1.7	J	P
1,1,2,2-TETRACHLOROETHANE	1.0	U	
1,1,2-TRICHLOROETHANE	1.0	U	
1,1,2-TRICHLOROTRIFLUOROETHANE	1.0	UJ	C
1,1-DICHLOROETHANE	1.0	U	
1,1-DICHLOROETHENE	1.0	U	
1,2,4-TRICHLOROBENZENE	1.0	U	
1,2-DIBROMO-3-CHLOROPROPANE	1.0	U	
1,2-DIBROMOETHANE	1.0	U	
1,2-DICHLOROBENZENE	1.0	U	
1,2-DICHLOROETHANE	1.0	U	
1,2-DICHLOROPROPANE	1.0	U	
1,3-DICHLOROBENZENE	1.0	U	
1,4-DICHLOROBENZENE	1.0	U	
2-BUTANONE	1.0	U	
2-HEXANONE	1.0	U	
4-METHYL-2-PENTANONE	1.0	U	
ACETONE	5.7	U	A
BENZENE	1.0	U	
BROMODICHLOROMETHANE	1.0	U	
BROMOFORM	1.0	U	
BROMOMETHANE	1.0	U	
CARBON DISULFIDE	1.0	U	
CARBON TETRACHLORIDE	1.0	U	
CHLOROBENZENE	1.0	U	
CHLORODIBROMOMETHANE	1.0	U	
CHLOROETHANE	1.0	U	
CHLOROFORM	1.0	U	
CHLOROMETHANE	1.0	U	
CIS-1,2-DICHLOROETHENE	1.0	U	
CIS-1,3-DICHLOROPROPENE	1.0	U	
CYCLOHEXANE	1.0	U	

nsample	08SSW010
samp_date	10/3/2007 2:04:00 PM
lab_id	TT02001-010
qc_type	NM
units	UG/KG
Pct_Solids	87.0
DUP_OF:	

Parameter	Result	Val Qual	Qual Code
DICHLORODIFLUOROMETHANE	1.0	U	
ETHYLBENZENE	1.0	U	
ISOPROPYLBENZENE	1.0	U	
M+P-XYLENES	1.0	U	
METHYL ACETATE	1.0	U	
METHYL CYCLOHEXANE	1.0	U	
METHYL TERT-BUTYL ETHER	1.0	U	
METHYLENE CHLORIDE	1.0	UJ	C
O-XYLENE	1.0	U	
STYRENE	1.0	U	
TETRACHLOROETHENE	1.0	U	
TOLUENE	1.0	U	
TOTAL XYLENES	1.0	U	
TRANS-1,2-DICHLOROETHENE	1.0	U	
TRANS-1,3-DICHLOROPROPENE	1.0	U	
TRICHLOROETHENE	1.0	U	
TRICHLOROFLUOROMETHANE	1.0	U	
VINYL CHLORIDE	1.0	U	

nsample	08SSW011
samp_date	10/3/2007 2:20:00 PM
lab_id	TT02001-011
qc_type	NM
units	UG/KG
Pct_Solids	85.0
DUP_OF:	

Parameter	Result	Val Qual	Qual Code
1,1,1-TRICHLOROETHANE	93	J	D
1,1,2,2-TETRACHLOROETHANE	1.0	U	
1,1,2-TRICHLOROETHANE	1.0	U	
1,1,2-TRICHLOROTRIFLUOROETHANE	1.0	UJ	C
1,1-DICHLOROETHANE	9.2		
1,1-DICHLOROETHENE	1.0	U	
1,2,4-TRICHLOROBENZENE	1.0	UJ	D
1,2-DIBROMO-3-CHLOROPROPANE	1.0	U	
1,2-DIBROMOETHANE	1.0	U	
1,2-DICHLOROBENZENE	1.0	UJ	D
1,2-DICHLOROETHANE	1.0	U	
1,2-DICHLOROPROPANE	1.0	U	
1,3-DICHLOROBENZENE	1.0	UJ	D
1,4-DICHLOROBENZENE	1.0	UJ	D
2-BUTANONE	1.0	U	
2-HEXANONE	1.0	UJ	D
4-METHYL-2-PENTANONE	1.0	U	
ACETONE	5.7	U	A
BENZENE	1.0	U	
BROMODICHLOROMETHANE	1.0	U	
BROMOFORM	1.0	U	
BROMOMETHANE	1.0	U	
CARBON DISULFIDE	1.0	U	
CARBON TETRACHLORIDE	1.0	U	
CHLOROBENZENE	1.0	U	
CHLORODIBROMOMETHANE	1.0	U	
CHLOROETHANE	1.0	U	
CHLOROFORM	1.0	U	
CHLOROMETHANE	1.0	U	
CIS-1,2-DICHLOROETHENE	74	J	D
CIS-1,3-DICHLOROPROPENE	1.0	UJ	D
CYCLOHEXANE	1.0	U	

nsample	08SSW011
samp_date	10/3/2007 2:20:00 PM
lab_id	TT02001-011
qc_type	NM
units	UG/KG
Pct_Solids	85.0
DUP_OF:	

Parameter	Result	Val Qual	Qual Code
DICHLORODIFLUOROMETHANE	1.0	U	
ETHYLBENZENE	1.0	U	
ISOPROPYLBENZENE	1.0	U	
M+P-XYLENES	1.0	UJ	D
METHYL ACETATE	1.0	U	
METHYL CYCLOHEXANE	1.0	U	
METHYL TERT-BUTYL ETHER	1.0	U	
METHYLENE CHLORIDE	1.0	UJ	C
O-XYLENE	1.0	UJ	D
STYRENE	1.0	UJ	D
TETRACHLOROETHENE	1.0	U	
TOLUENE	1.0	U	
TOTAL XYLENES	1.0	UJ	D
TRANS-1,2-DICHLOROETHENE	1.0	U	
TRANS-1,3-DICHLOROPROPENE	1.0	U	
TRICHLOROETHENE	28	J	D
TRICHLOROFLUOROMETHANE	1.0	U	
VINYL CHLORIDE	1.0	U	

nsample	08SSW012
samp_date	10/3/2007 2:25:00 PM
lab_id	TT02001-012
qc_type	NM
units	UG/KG
Pct_Solids	82.0
DUP_OF:	

Parameter	Result	Val Qual	Qual Code
1,1,1-TRICHLOROETHANE	22		
1,1,2,2-TETRACHLOROETHANE	1.1	U	
1,1,2-TRICHLOROETHANE	1.1	U	
1,1,2-TRICHLOROTRIFLUOROETHANE	1.1	UJ	C
1,1-DICHLOROETHANE	2.1	J	P
1,1-DICHLOROETHENE	1.1	U	
1,2,4-TRICHLOROBENZENE	1.1	U	
1,2-DIBROMO-3-CHLOROPROPANE	1.1	U	
1,2-DIBROMOETHANE	1.1	U	
1,2-DICHLOROBENZENE	1.1	U	
1,2-DICHLOROETHANE	1.1	U	
1,2-DICHLOROPROPANE	1.1	U	
1,3-DICHLOROBENZENE	1.1	U	
1,4-DICHLOROBENZENE	1.1	U	
2-BUTANONE	1.1	U	
2-HEXANONE	1.1	U	
4-METHYL-2-PENTANONE	1.1	U	
ACETONE	7.8	U	A
BENZENE	1.1	U	
BROMODICHLOROMETHANE	1.1	U	
BROMOFORM	1.1	U	
BROMOMETHANE	1.1	U	
CARBON DISULFIDE	1.1	U	
CARBON TETRACHLORIDE	1.1	U	
CHLOROBENZENE	1.1	U	
CHLORODIBROMOMETHANE	1.1	U	
CHLOROETHANE	1.1	U	
CHLOROFORM	1.1	U	
CHLOROMETHANE	1.1	U	
CIS-1,2-DICHLOROETHENE	10		
CIS-1,3-DICHLOROPROPENE	1.1	U	
CYCLOHEXANE	1.1	U	

PROJ_NO: 00352

SDG: TT02001 MEDIA: SOIL DATA FRACTION: OV

nsample	08SSW012
samp_date	10/3/2007 2:25:00 PM
lab_id	TT02001-012
qc_type	NM
units	UG/KG
Pct_Solids	82.0
DUP_OF:	

Parameter	Result	Val Qual	Qual Code
DICHLORODIFLUOROMETHANE	1.1	U	
ETHYLBENZENE	1.1	U	
ISOPROPYLBENZENE	1.1	U	
M+P-XYLENES	1.1	U	
METHYL ACETATE	1.1	U	
METHYL CYCLOHEXANE	1.1	U	
METHYL TERT-BUTYL ETHER	1.1	U	
METHYLENE CHLORIDE	1.1	UJ	C
O-XYLENE	1.1	U	
STYRENE	1.1	U	
TETRACHLOROETHENE	1.1	U	
TOLUENE	1.1	U	
TOTAL XYLENES	1.1	U	
TRANS-1,2-DICHLOROETHENE	1.1	U	
TRANS-1,3-DICHLOROPROPENE	1.1	U	
TRICHLOROETHENE	6.4		
TRICHLOROFLUOROMETHANE	1.1	U	
VINYL CHLORIDE	1.1	U	

nsample	08SSW013RE
samp_date	10/3/2007 2:35:00 PM
lab_id	TT02001-013RE
qc_type	NM
units	UG/KG
Pct_Solids	79.0
DUP_OF:	

Parameter	Result	Val Qual	Qual Code
1,1,1-TRICHLOROETHANE	47		
1,1,2,2-TETRACHLOROETHANE	1.1	U	
1,1,2-TRICHLOROETHANE	1.1	U	
1,1,2-TRICHLOROTRIFLUOROETHANE	1.1	UJ	C
1,1-DICHLOROETHANE	23		
1,1-DICHLOROETHENE	1.1	U	
1,2,4-TRICHLOROBENZENE	1.1	U	
1,2-DIBROMO-3-CHLOROPROPANE	1.1	U	
1,2-DIBROMOETHANE	1.1	U	
1,2-DICHLOROBENZENE	1.1	U	
1,2-DICHLOROETHANE	1.1	U	
1,2-DICHLOROPROPANE	1.1	U	
1,3-DICHLOROBENZENE	1.1	U	
1,4-DICHLOROBENZENE	1.1	U	
2-BUTANONE	1.1	U	
2-HEXANONE	1.1	U	
4-METHYL-2-PENTANONE	1.1	U	
ACETONE	7.8	U	A
BENZENE	1.1	U	
BROMODICHLOROMETHANE	1.1	U	
BROMOFORM	1.1	U	
BROMOMETHANE	1.1	U	
CARBON DISULFIDE	1.1	U	
CARBON TETRACHLORIDE	1.1	U	
CHLOROBENZENE	1.1	U	
CHLORODIBROMOMETHANE	1.1	U	
CHLOROETHANE	1.1	U	
CHLOROFORM	1.1	U	
CHLOROMETHANE	1.1	U	
CIS-1,2-DICHLOROETHENE	140		
CIS-1,3-DICHLOROPROPENE	1.1	U	
CYCLOHEXANE	1.1	U	

nsample	08SSW013RE
samp_date	10/3/2007 2:35:00 PM
lab_id	TT02001-013RE
qc_type	NM
units	UG/KG
Pct_Solids	79.0
DUP_OF:	

Parameter	Result	Val Qual	Qual Code
DICHLORODIFLUOROMETHANE	1.1	U	
ETHYLBENZENE	1.1	U	
ISOPROPYLBENZENE	1.1	U	
M+P-XYLENES	1.1	U	
METHYL ACETATE	1.1	U	
METHYL CYCLOHEXANE	1.1	U	
METHYL TERT-BUTYL ETHER	1.1	U	
METHYLENE CHLORIDE	14	U	A
O-XYLENE	1.1	U	
STYRENE	1.1	U	
TETRACHLOROETHENE	1.1	U	
TOLUENE	1.1	U	
TOTAL XYLENES	1.1	U	
TRANS-1,2-DICHLOROETHENE	1.1	U	
TRANS-1,3-DICHLOROPROPENE	1.1	U	
TRICHLOROETHENE	1.5	J	P
TRICHLOROFLUOROMETHANE	1.1	U	
VINYL CHLORIDE	1.1	U	

nsample	08SSW014	nsample	08SSW014	nsample	08SSW014DL
samp_date	10/4/2007 12:29:00 PM	samp_date	10/4/2007 12:29:00 PM	samp_date	10/4/2007 12:29:00 PM
lab_id	TT02001-015	lab_id	TT02001-015	lab_id	TT02001-015DL
qc_type	NM	qc_type	NM	qc_type	NM
units	UG/KG	units	UG/KG	units	UG/KG
Pct_Solids	83.0	Pct_Solids	83.0	Pct_Solids	83.0
DUP_OF:		DUP_OF:		DUP_OF:	

Parameter	Result	Val Qual	Qual Code
1,1,1-TRICHLOROETHANE	7.4		
1,1,2,2-TETRACHLOROETHANE	1.5	U	
1,1,2-TRICHLOROETHANE	1.5	U	
1,1,2-TRICHLOROTRIFLUOROETHANE	1.5	UJ	C
1,1-DICHLOROETHANE	77		
1,1-DICHLOROETHENE	1.5	U	
1,2,4-TRICHLOROBENZENE	1.5	U	
1,2-DIBROMO-3-CHLOROPROPANE	1.5	U	
1,2-DIBROMOETHANE	1.5	U	
1,2-DICHLOROBENZENE	1.5	U	
1,2-DICHLOROETHANE	1.5	U	
1,2-DICHLOROPROPANE	1.5	U	
1,3-DICHLOROBENZENE	1.5	U	
1,4-DICHLOROBENZENE	1.5	U	
2-BUTANONE	51		
2-HEXANONE	1.5	U	
4-METHYL-2-PENTANONE	1.5	U	
ACETONE	170		
BENZENE	1.5	U	
BROMODICHLOROMETHANE	1.5	U	
BROMOFORM	1.5	U	
BROMOMETHANE	1.5	U	
CARBON DISULFIDE	1.5	U	
CARBON TETRACHLORIDE	1.5	U	
CHLOROBENZENE	1.5	U	
CHLORODIBROMOMETHANE	1.5	U	
CHLOROFORM	1.5	U	
CHLOROMETHANE	1.5	U	
CIS-1,2-DICHLOROETHENE	140		
CIS-1,3-DICHLOROPROPENE	1.5	U	
CYCLOHEXANE	1.5	U	
DICHLORODIFLUOROMETHANE	1.5	U	

Parameter	Result	Val Qual	Qual Code
ETHYLBENZENE	1.5	U	
ISOPROPYLBENZENE	1.5	U	
M+P-XYLENES	1.5	U	
METHYL ACETATE	1.5	U	
METHYL CYCLOHEXANE	1.5	U	
METHYL TERT-BUTYL ETHER	1.5	U	
METHYLENE CHLORIDE	1.5	UJ	C
O-XYLENE	1.5	U	
STYRENE	1.5	U	
TETRACHLOROETHENE	1.5	U	
TOLUENE	4.0	J	P
TOTAL XYLENES	1.5	U	
TRANS-1,2-DICHLOROETHENE	4.7		
TRANS-1,3-DICHLOROPROPENE	1.5	U	
TRICHLOROETHENE	1.5	U	
TRICHLOROFLUOROMETHANE	1.5	U	
VINYL CHLORIDE	51		

Parameter	Result	Val Qual	Qual Code
CHLOROETHANE	290		

PROJ_NO: 00352

SDG: TT02001 MEDIA: SOIL DATA FRACTION: OV

nsample	08SSW015	nsample	08SSW015	nsample	08SSW016
samp_date	10/4/2007 12:34:00 PM	samp_date	10/4/2007 12:34:00 PM	samp_date	10/4/2007 12:40:00 PM
lab_id	TT02001-016	lab_id	TT02001-016	lab_id	TT02001-017
qc_type	NM	qc_type	NM	qc_type	NM
units	UG/KG	units	UG/KG	units	UG/KG
Pct_Solids	80.0	Pct_Solids	80.0	Pct_Solids	74.0
DUP_OF:		DUP_OF:		DUP_OF:	

Parameter	Result	Val Qual	Qual Code
1,1,1-TRICHLOROETHANE	1.1	U	
1,1,2,2-TETRACHLOROETHANE	1.1	U	
1,1,2-TRICHLOROETHANE	1.1	U	
1,1,2-TRICHLOROTRIFLUOROETHANE	1.1	UJ	C
1,1-DICHLOROETHANE	13		
1,1-DICHLOROETHENE	1.1	U	
1,2,4-TRICHLOROBENZENE	1.1	U	
1,2-DIBROMO-3-CHLOROPROPANE	1.1	U	
1,2-DIBROMOETHANE	1.1	U	
1,2-DICHLOROBENZENE	1.1	U	
1,2-DICHLOROETHANE	1.1	U	
1,2-DICHLOROPROPANE	1.1	U	
1,3-DICHLOROBENZENE	1.1	U	
1,4-DICHLOROBENZENE	1.1	U	
2-BUTANONE	3.7	J	P
2-HEXANONE	1.1	U	
4-METHYL-2-PENTANONE	1.1	U	
ACETONE	24	U	A
BENZENE	1.1	U	
BROMODICHLOROMETHANE	1.1	U	
BROMOFORM	1.1	U	
BROMOMETHANE	1.1	U	
CARBON DISULFIDE	1.1	U	
CARBON TETRACHLORIDE	1.1	U	
CHLOROBENZENE	1.1	U	
CHLORODIBROMOMETHANE	1.1	U	
CHLOROETHANE	1.1	U	
CHLOROFORM	1.1	U	
CHLOROMETHANE	1.1	U	
CIS-1,2-DICHLOROETHENE	3.9		
CIS-1,3-DICHLOROPROPENE	1.1	U	
CYCLOHEXANE	1.1	U	

Parameter	Result	Val Qual	Qual Code
DICHLORODIFLUOROMETHANE	1.1	U	
ETHYLBENZENE	1.1	U	
ISOPROPYLBENZENE	1.1	U	
M+P-XYLENES	1.1	U	
METHYL ACETATE	1.1	U	
METHYL CYCLOHEXANE	1.1	U	
METHYL TERT-BUTYL ETHER	1.1	U	
METHYLENE CHLORIDE	1.1	UJ	C
O-XYLENE	1.1	U	
STYRENE	1.1	U	
TETRACHLOROETHENE	1.1	U	
TOLUENE	1.1	U	
TOTAL XYLENES	1.1	U	
TRANS-1,2-DICHLOROETHENE	1.1	U	
TRANS-1,3-DICHLOROPROPENE	1.1	U	
TRICHLOROETHENE	2.5	J	P
TRICHLOROFLUOROMETHANE	1.1	U	
VINYL CHLORIDE	1.1	U	

Parameter	Result	Val Qual	Qual Code
1,1,1-TRICHLOROETHANE	1.2	U	
1,1,2,2-TETRACHLOROETHANE	1.2	U	
1,1,2-TRICHLOROETHANE	1.2	U	
1,1,2-TRICHLOROTRIFLUOROETHANE	1.2	UJ	C
1,1-DICHLOROETHANE	1.2	U	
1,1-DICHLOROETHENE	1.2	U	
1,2,4-TRICHLOROBENZENE	1.2	U	
1,2-DIBROMO-3-CHLOROPROPANE	1.2	U	
1,2-DIBROMOETHANE	1.2	U	
1,2-DICHLOROBENZENE	1.2	U	
1,2-DICHLOROETHANE	1.2	U	
1,2-DICHLOROPROPANE	1.2	U	
1,3-DICHLOROBENZENE	1.2	U	
1,4-DICHLOROBENZENE	1.2	U	
2-BUTANONE	15		
2-HEXANONE	1.2	U	
4-METHYL-2-PENTANONE	1.2	U	
ACETONE	52		
BENZENE	1.2	U	
BROMODICHLOROMETHANE	1.2	U	
BROMOFORM	1.2	U	
BROMOMETHANE	1.2	U	
CARBON DISULFIDE	1.2	U	
CARBON TETRACHLORIDE	1.2	U	
CHLOROBENZENE	1.2	U	
CHLORODIBROMOMETHANE	1.2	U	
CHLOROETHANE	1.2	U	
CHLOROFORM	1.2	U	
CHLOROMETHANE	1.2	U	
CIS-1,2-DICHLOROETHENE	2.9	J	P
CIS-1,3-DICHLOROPROPENE	1.2	U	
CYCLOHEXANE	1.2	U	

nsample	08SSW016
samp_date	10/4/2007 12:40:00 PM
lab_id	TT02001-017
qc_type	NM
units	UG/KG
Pct_Solids	74.0
DUP_OF:	

Parameter	Result	Val Qual	Qual Code
DICHLORODIFLUOROMETHANE	1.2	U	
ETHYLBENZENE	1.2	U	
ISOPROPYLBENZENE	1.2	U	
M+P-XYLENES	1.2	U	
METHYL ACETATE	1.2	U	
METHYL CYCLOHEXANE	1.2	U	
METHYL TERT-BUTYL ETHER	1.2	U	
METHYLENE CHLORIDE	1.2	UJ	C
O-XYLENE	1.2	U	
STYRENE	1.2	U	
TETRACHLOROETHENE	1.2	U	
TOLUENE	1.2	U	
TOTAL XYLENES	1.2	U	
TRANS-1,2-DICHLOROETHENE	1.2	U	
TRANS-1,3-DICHLOROPROPENE	1.2	U	
TRICHLOROETHENE	1.2	U	
TRICHLOROFLUOROMETHANE	1.2	U	
VINYL CHLORIDE	1.2	U	

Tetra Tech NUS **INTERNAL CORRESPONDENCE**

TO:	**R. BASINSKI**	**DATE:**	**JANUARY 15, 2008**
FROM:	**EDWARD SEDLMYER**	**COPIES:**	**DV FILE**
SUBJECT:	**ORGANIC DATA VALIDATION – VOA CTO 0020, NSWC CRANE SDG TT02002**		
SAMPLES:	8 / Soil		

08FD11120701	08SSC001	08SSC002
08SSC003	08SSC004	08SSC005
08SSC006	08TB11120701	

OVERVIEW

The sample set for CTO 0020, NSWC CRANE, SDG TT02002 consists of one trip blank (1) and seven (7) soil environmental samples. One field duplicate was associated with this SDG: 08SSC002 / 08FD11120701. All samples were analyzed for volatile organic compounds (VOCs).

The samples were collected by TetraTech NUS on November 12, 2007 and analyzed by Laucks Testing Laboratories, Seattle, WA. All analyses were conducted in accordance with USEPA SW 846 Method 8260B. The data contained in this SDG were validated with regard to the following parameters:

- * Data completeness
- * Holding times
- * GC/MS Tuning
- Initial and continuing calibration
- * Blank results
- * Surrogate spike recoveries
- * Internal standard recoveries
- * Blank Spike/Blank Spike Duplicate Results
- Matrix Spike/Matrix Spike Duplicate Results
- * Detection Limits
- * Field Duplicate Results
- * Compound Quantitation
- * Compound Identification

The symbol (*) indicates that all quality control criteria were met for this parameter. Problems affecting data quality are discussed below; documentation supporting these findings is presented in Appendix C. Qualified Analytical results are presented in Appendix A. Results as reported by the laboratory are presented in Appendix B.

VOC

The following compound was detected in the method blank:

Compound	Maximum Concentration	Blank Action Level
Acetone	1.3 µg/kg	13 µg/kg

Blank Actions

- Value < Reporting Limit (RL); value followed by a U.
- Value > RL and < Action level; report value followed by a U.
- Value > RL and > action level; report value followed by a J.

An action level of 10X the maximum contaminant concentration was established to evaluate laboratory contamination for acetone. Dilution factors, sample aliquots and percent solids were taken into consideration during the application of the action level. Positive results for acetone were qualified as blank contaminants in the affected soil samples.

The matrix spike / matrix spike duplicate (MS/MSD) performed on sample 08SSC002 had percent recoveries less than the quality control limit for 1,1-dichloroethane, benzene, m&p-xylene, o-xylene, styrene, isopropylbenzene, 1,2-dichlorobenzene and 1,2,4-trichlorobenzene in the MS and MSD. The compounds ethylbenzene, 1,3-dichlorobenzene, and 1,4-dichlorobenzene had recoveries less than the quality control limit in the MS. The nondetected results for 1,1-dichloroethane, benzene, m&p-xylene, o-xylene, styrene, isopropylbenzene, 1,2-dichlorobenzene and 1,2,4-trichlorobenzene have been qualified as estimated (UJ) in sample 08SSC002. No action was taken on ethylbenzene, 1,3-dichlorobenzene, and 1,4-dichlorobenzene because the MSD had acceptable recoveries.

Continuing calibration percent differences (%Ds) were greater than the 25% quality control limit for chloromethane and tetrachloroethene on instrument 5973B, on 11/13/07 at 11:21. The nondetected results for chloromethane and tetrachloroethene in all soil samples have been qualified as estimated (UJ).

A continuing calibration percent difference (%D) was greater than the 25% quality control limit for tetrachloroethene on instrument 5973B, on 11/20/07 at 12:05. The nondetected result for tetrachloroethene in sample 08TB11120701 has been qualified as estimated (UJ).

Notes

All positive results below the reporting limit were qualified as estimated (J) due to uncertainty near the detection limit.

EXECUTIVE SUMMARY

Laboratory Performance Issues: Qualifications were made on continuing calibration of two VOC compounds that failed to comply with %D quality control limits. Blank contamination resulted in the qualification of acetone.

Other Factors Affecting Data Quality: Matrix spike noncompliances resulted in qualification of the data.

The data for these analyses were reviewed with reference to the EPA Functional Guidelines for Organic Data Validation (October 1999) and the Department of Defense (DoD) document entitled "Quality Systems Manual (QSM) for Environmental Laboratories" (January 2006). The text of this report has been formulated to address only those problem areas affecting data quality.

"I attest that the data referenced herein were validated according to the agreed upon validation criteria as specified in the DoD QSM."

Tetra Tech 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 - Support Documentation

PROJ_NC 00352

SDG: TT02002 A: WATER DATA FRACTION: OV

nsample	08TB11120701	nsample	08TB11120701
samp_date	11/12/2007 2:10:00 PM	samp_date	11/12/2007 2:10:00 PM
lab_id	TT02002-008	lab_id	TT02002-008
qc_type	NM	qc_type	NM
units	UG/L	units	UG/L
Pct_Solids		Pct_Solids	
DUP_OF:		DUP_OF:	

Parameter	Result	Val Qual	Qual Code
1,1,1-TRICHLOROETHANE	1.0	U	
1,1,2,2-TETRACHLOROETHANE	1.0	U	
1,1,2-TRICHLOROETHANE	1.0	U	
1,1,2-TRICHLOROTRIFLUOROETHANE	1.0	U	
1,1-DICHLOROETHANE	1.0	U	
1,1-DICHLOROETHENE	1.0	U	
1,2,4-TRICHLOROBENZENE	1.0	U	
1,2-DIBROMO-3-CHLOROPROPANE	1.0	U	
1,2-DIBROMOETHANE	1.0	U	
1,2-DICHLOROBENZENE	1.0	U	
1,2-DICHLOROETHANE	1.0	U	
1,2-DICHLOROPROPANE	1.0	U	
1,3-DICHLOROBENZENE	1.0	U	
1,4-DICHLOROBENZENE	1.0	U	
2-BUTANONE	1.0	U	
2-HEXANONE	1.0	U	
4-METHYL-2-PENTANONE	1.0	U	
ACETONE	3.1	J	P
BENZENE	1.0	U	
BROMODICHLOROMETHANE	1.0	U	
BROMOFORM	1.0	U	
BROMOMETHANE	1.0	U	
CARBON DISULFIDE	1.0	U	
CARBON TETRACHLORIDE	1.0	U	
CHLOROBENZENE	1.0	U	
CHLORODIBROMOMETHANE	1.0	U	
CHLOROETHANE	1.0	U	
CHLOROFORM	1.0	U	
CHLOROMETHANE	1.0	U	
CIS-1,2-DICHLOROETHENE	1.0	U	
CIS-1,3-DICHLOROPROPENE	1.0	U	
CYCLOHEXANE	1.0	U	

Parameter	Result	Val Qual	Qual Code
DICHLORODIFLUOROMETHANE	1.0	U	
ETHYLBENZENE	1.0	U	
ISOPROPYLBENZENE	1.0	U	
M+P-XYLENES	1.0	U	
METHYL ACETATE	1.0	U	
METHYL CYCLOHEXANE	1.0	U	
METHYL TERT-BUTYL ETHER	1.0	U	
METHYLENE CHLORIDE	1.0	U	
O-XYLENE	1.0	U	
STYRENE	1.0	U	
TETRACHLOROETHENE	1.0	UJ	C
TOLUENE	1.0	U	
TOTAL XYLENES	1.0	U	
TRANS-1,2-DICHLOROETHENE	1.0	U	
TRANS-1,3-DICHLOROPROPENE	1.0	U	
TRICHLOROETHENE	1.0	U	
TRICHLOROFLUOROMETHANE	1.0	U	
VINYL CHLORIDE	1.0	U	

PROJ_NO: 00352

SDG: TT02002 MEDIA: SOIL DATA FRACTION: OV

nsample	08FD11120701
samp_date	11/12/2007
lab_id	TT02002-007
qc_type	NM
units	UG/KG
Pct_Solids	91.0
DUP_OF:	08SSC002

Parameter	Result	Val Qual	Qual Code
1,1,1-TRICHLOROETHANE	0.91	U	
1,1,2,2-TETRACHLOROETHANE	0.91	U	
1,1,2-TRICHLOROETHANE	0.91	U	
1,1,2-TRICHLOROTRIFLUOROETHANE	0.91	U	
1,1-DICHLOROETHANE	0.91	U	
1,1-DICHLOROETHENE	0.91	U	
1,2,4-TRICHLOROBENZENE	0.91	U	
1,2-DIBROMO-3-CHLOROPROPANE	0.91	U	
1,2-DIBROMOETHANE	0.91	U	
1,2-DICHLOROBENZENE	0.91	U	
1,2-DICHLOROETHANE	0.91	U	
1,2-DICHLOROPROPANE	0.91	U	
1,3-DICHLOROBENZENE	0.91	U	
1,4-DICHLOROBENZENE	0.91	U	
2-BUTANONE	0.91	U	
2-HEXANONE	0.91	U	
4-METHYL-2-PENTANONE	0.91	U	
ACETONE	1.5	U	A
BENZENE	0.91	U	
BROMODICHLOROMETHANE	0.91	U	
BROMOFORM	0.91	U	
BROMOMETHANE	0.91	U	
CARBON DISULFIDE	0.91	U	
CARBON TETRACHLORIDE	0.91	U	
CHLOROBENZENE	0.91	U	
CHLORODIBROMOMETHANE	0.91	U	
CHLOROETHANE	0.91	U	
CHLOROFORM	0.91	U	
CHLOROMETHANE	0.91	UJ	C
CIS-1,2-DICHLOROETHENE	0.91	U	
CIS-1,3-DICHLOROPROPENE	0.91	U	
CYCLOHEXANE	0.91	U	

nsample	08FD11120701
samp_date	11/12/2007
lab_id	TT02002-007
qc_type	NM
units	UG/KG
Pct_Solids	91.0
DUP_OF:	08SSC002

Parameter	Result	Val Qual	Qual Code
DICHLORODIFLUOROMETHANE	0.91	U	
ETHYLBENZENE	0.91	U	
ISOPROPYLBENZENE	0.91	U	
M+P-XYLENES	0.91	U	
METHYL ACETATE	0.91	U	
METHYL CYCLOHEXANE	0.91	U	
METHYL TERT-BUTYL ETHER	0.91	U	
METHYLENE CHLORIDE	0.91	U	
O-XYLENE	0.91	U	
STYRENE	0.91	U	
TETRACHLOROETHENE	0.91	UJ	C
TOLUENE	0.91	U	
TOTAL XYLENES	0.91	U	
TRANS-1,2-DICHLOROETHENE	0.91	U	
TRANS-1,3-DICHLOROPROPENE	0.91	U	
TRICHLOROETHENE	0.91	U	
TRICHLOROFLUOROMETHANE	0.91	U	
VINYL CHLORIDE	0.91	U	

nsample	08SSC001
samp_date	11/12/2007 12:30:00 PM
lab_id	TT02002-001
qc_type	NM
units	UG/KG
Pct_Solids	95.0
DUP_OF:	

Parameter	Result	Val Qual	Qual Code
1,1,1-TRICHLOROETHANE	0.95	U	
1,1,2,2-TETRACHLOROETHANE	0.95	U	
1,1,2-TRICHLOROETHANE	0.95	U	
1,1,2-TRICHLOROTRIFLUOROETHANE	0.95	U	
1,1-DICHLOROETHANE	0.95	U	
1,1-DICHLOROETHENE	0.95	U	
1,2,4-TRICHLOROBENZENE	0.95	U	
1,2-DIBROMO-3-CHLOROPROPANE	0.95	U	
1,2-DIBROMOETHANE	0.95	U	
1,2-DICHLOROBENZENE	0.95	U	
1,2-DICHLOROETHANE	0.95	U	
1,2-DICHLOROPROPANE	0.95	U	
1,3-DICHLOROBENZENE	0.95	U	
1,4-DICHLOROBENZENE	0.95	U	
2-BUTANONE	0.95	U	
2-HEXANONE	0.95	U	
4-METHYL-2-PENTANONE	0.95	U	
ACETONE	2.6	U	A
BENZENE	0.95	U	
BROMODICHLOROMETHANE	0.95	U	
BROMOFORM	0.95	U	
BROMOMETHANE	0.95	U	
CARBON DISULFIDE	0.95	U	
CARBON TETRACHLORIDE	0.95	U	
CHLOROBENZENE	0.95	U	
CHLORODIBROMOMETHANE	0.95	U	
CHLOROETHANE	0.95	U	
CHLOROFORM	0.95	U	
CHLOROMETHANE	0.95	UJ	C
CIS-1,2-DICHLOROETHENE	0.95	U	
CIS-1,3-DICHLOROPROPENE	0.95	U	
CYCLOHEXANE	0.95	U	

PROJ_NO: 00352

SDG: TT0200 IA: SOIL DATA FRACTION: OV

nsample	08SSC001
samp_date	11/12/2007 12:30:00 PM
lab_id	TT02002-001
qc_type	NM
units	UG/KG
Pct_Solids	95.0
DUP_OF:	

Parameter	Result	Val Qual	Qual Code
DICHLORODIFLUOROMETHANE	0.95	U	
ETHYLBENZENE	0.95	U	
ISOPROPYLBENZENE	0.95	U	
M+P-XYLENES	0.95	U	
METHYL ACETATE	0.95	U	
METHYL CYCLOHEXANE	0.95	U	
METHYL TERT-BUTYL ETHER	0.95	U	
METHYLENE CHLORIDE	0.95	U	
O-XYLENE	0.95	U	
STYRENE	0.95	U	
TETRACHLOROETHENE	0.95	UJ	C
TOLUENE	0.95	U	
TOTAL XYLENES	0.95	U	
TRANS-1,2-DICHLOROETHENE	0.95	U	
TRANS-1,3-DICHLOROPROPENE	0.95	U	
TRICHLOROETHENE	0.95	U	
TRICHLOROFLUOROMETHANE	0.95	U	
VINYL CHLORIDE	0.95	U	

nsample	08SSC002
samp_date	11/12/2007 12:37:00 PM
lab_id	TT02002-002
qc_type	NM
units	UG/KG
Pct_Solids	88.0
DUP_OF:	

Parameter	Result	Val Qual	Qual Code
1,1,1-TRICHLOROETHANE	0.94	U	
1,1,2,2-TETRACHLOROETHANE	0.94	U	
1,1,2-TRICHLOROETHANE	0.94	U	
1,1,2-TRICHLOROTRIFLUOROETHANE	0.94	U	
1,1-DICHLOROETHANE	0.94	UJ	D
1,1-DICHLOROETHENE	0.94	U	
1,2,4-TRICHLOROBENZENE	0.94	UJ	D
1,2-DIBROMO-3-CHLOROPROPANE	0.94	U	
1,2-DIBROMOETHANE	0.94	U	
1,2-DICHLOROBENZENE	0.94	UJ	D
1,2-DICHLOROETHANE	0.94	U	
1,2-DICHLOROPROPANE	0.94	U	
1,3-DICHLOROBENZENE	0.94	U	
1,4-DICHLOROBENZENE	0.94	U	
2-BUTANONE	0.94	U	
2-HEXANONE	0.94	U	
4-METHYL-2-PENTANONE	0.94	U	
ACETONE	1.6	U	A
BENZENE	0.94	UJ	D
BROMODICHLOROMETHANE	0.94	U	
BROMOFORM	0.94	U	
BROMOMETHANE	0.94	U	
CARBON DISULFIDE	0.94	U	
CARBON TETRACHLORIDE	0.94	U	
CHLOROBENZENE	0.94	U	
CHLORODIBROMOMETHANE	0.94	U	
CHLOROETHANE	0.94	U	
CHLOROFORM	0.94	U	
CHLOROMETHANE	0.94	UJ	C
CIS-1,2-DICHLOROETHENE	0.94	U	
CIS-1,3-DICHLOROPROPENE	0.94	U	
CYCLOHEXANE	0.94	U	

nsample	08SSC002
samp_date	11/12/2007 12:37:00 PM
lab_id	TT02002-002
qc_type	NM
units	UG/KG
Pct_Solids	88.0
DUP_OF:	

Parameter	Result	Val Qual	Qual Code
DICHLORODIFLUOROMETHANE	0.94	U	
ETHYLBENZENE	0.94	U	
ISOPROPYLBENZENE	0.94	UJ	D
M+P-XYLENES	0.94	UJ	D
METHYL ACETATE	0.94	U	
METHYL CYCLOHEXANE	0.94	U	
METHYL TERT-BUTYL ETHER	0.94	U	
METHYLENE CHLORIDE	0.94	U	
O-XYLENE	0.94	UJ	D
STYRENE	0.94	UJ	D
TETRACHLOROETHENE	0.94	UJ	C
TOLUENE	0.94	U	
TOTAL XYLENES	0.94	U	
TRANS-1,2-DICHLOROETHENE	0.94	U	
TRANS-1,3-DICHLOROPROPENE	0.94	U	
TRICHLOROETHENE	0.94	U	
TRICHLOROFLUOROMETHANE	0.94	U	
VINYL CHLORIDE	0.94	U	

SDG: TT02002 MEDIA: SOIL DATA FRACTION: OV

nsample	08SSC003	nsample	08SSC003	nsample	08SSC004
samp_date	11/12/2007 12:44:00 PM	samp_date	11/12/2007 12:44:00 PM	samp_date	11/12/2007 12:52:00 PM
lab_id	TT02002-003	lab_id	TT02002-003	lab_id	TT02002-004
qc_type	NM	qc_type	NM	qc_type	NM
units	UG/KG	units	UG/KG	units	UG/KG
Pct_Solids	93.0	Pct_Solids	93.0	Pct_Solids	96.0
DUP_OF:		DUP_OF:		DUP_OF:	

Parameter	Result	Val Qual	Qual Code
1,1,1-TRICHLOROETHANE	1.1	U	
1,1,2,2-TETRACHLOROETHANE	1.1	U	
1,1,2-TRICHLOROETHANE	1.1	U	
1,1,2-TRICHLOROTRIFLUOROETHANE	1.1	U	
1,1-DICHLOROETHANE	1.1	U	
1,1-DICHLOROETHENE	1.1	U	
1,2,4-TRICHLOROBENZENE	1.1	U	
1,2-DIBROMO-3-CHLOROPROPANE	1.1	U	
1,2-DIBROMOETHANE	1.1	U	
1,2-DICHLOROBENZENE	1.1	U	
1,2-DICHLOROETHANE	1.1	U	
1,2-DICHLOROPROPANE	1.1	U	
1,3-DICHLOROBENZENE	1.1	U	
1,4-DICHLOROBENZENE	1.1	U	
2-BUTANONE	1.1	U	
2-HEXANONE	1.1	U	
4-METHYL-2-PENTANONE	1.1	U	
ACETONE	2.4	U	A
BENZENE	1.1	U	
BROMODICHLOROMETHANE	1.1	U	
BROMOFORM	1.1	U	
BROMOMETHANE	1.1	U	
CARBON DISULFIDE	1.1	U	
CARBON TETRACHLORIDE	1.1	U	
CHLOROBENZENE	1.1	U	
CHLORODIBROMOMETHANE	1.1	U	
CHLOROETHANE	1.1	U	
CHLOROFORM	1.1	U	
CHLOROMETHANE	1.1	UJ	C
CIS-1,2-DICHLOROETHENE	1.1	U	
CIS-1,3-DICHLOROPROPENE	1.1	U	
CYCLOHEXANE	1.1	U	

Parameter	Result	Val Qual	Qual Code
DICHLORODIFLUOROMETHANE	1.1	U	
ETHYLBENZENE	1.1	U	
ISOPROPYLBENZENE	1.1	U	
M+P-XYLENES	1.1	U	
METHYL ACETATE	1.1	U	
METHYL CYCLOHEXANE	1.1	U	
METHYL TERT-BUTYL ETHER	1.1	U	
METHYLENE CHLORIDE	1.1	U	
O-XYLENE	1.1	U	
STYRENE	1.1	U	
TETRACHLOROETHENE	1.1	UJ	C
TOLUENE	1.1	U	
TOTAL XYLENES	1.1	U	
TRANS-1,2-DICHLOROETHENE	1.1	U	
TRANS-1,3-DICHLOROPROPENE	1.1	U	
TRICHLOROETHENE	1.1	U	
TRICHLOROFLUOROMETHANE	1.1	U	
VINYL CHLORIDE	1.1	U	

Parameter	Result	Val Qual	Qual Code
1,1,1-TRICHLOROETHANE	1.0	U	
1,1,2,2-TETRACHLOROETHANE	1.0	U	
1,1,2-TRICHLOROETHANE	1.0	U	
1,1,2-TRICHLOROTRIFLUOROETHANE	1.0	U	
1,1-DICHLOROETHANE	1.0	U	
1,1-DICHLOROETHENE	1.0	U	
1,2,4-TRICHLOROBENZENE	1.0	U	
1,2-DIBROMO-3-CHLOROPROPANE	1.0	U	
1,2-DIBROMOETHANE	1.0	U	
1,2-DICHLOROBENZENE	1.0	U	
1,2-DICHLOROETHANE	1.0	U	
1,2-DICHLOROPROPANE	1.0	U	
1,3-DICHLOROBENZENE	1.0	U	
1,4-DICHLOROBENZENE	1.0	U	
2-BUTANONE	1.0	U	
2-HEXANONE	1.0	U	
4-METHYL-2-PENTANONE	1.0	U	
ACETONE	2.3	U	A
BENZENE	1.0	U	
BROMODICHLOROMETHANE	1.0	U	
BROMOFORM	1.0	U	
BROMOMETHANE	1.0	U	
CARBON DISULFIDE	1.0	U	
CARBON TETRACHLORIDE	1.0	U	
CHLOROBENZENE	1.0	U	
CHLORODIBROMOMETHANE	1.0	U	
CHLOROETHANE	1.0	U	
CHLOROFORM	1.0	U	
CHLOROMETHANE	1.0	UJ	C
CIS-1,2-DICHLOROETHENE	1.0	U	
CIS-1,3-DICHLOROPROPENE	1.0	U	
CYCLOHEXANE	1.0	U	

nsample	08SSC004
samp_date	11/12/2007 12:52:00 PM
lab_id	TT02002-004
qc_type	NM
units	UG/KG
Pct_Solids	96.0
DUP_OF:	

Parameter	Result	Val Qual	Qual Code
DICHLORODIFLUOROMETHANE	1.0	U	
ETHYLBENZENE	1.0	U	
ISOPROPYLBENZENE	1.0	U	
M+P-XYLENES	1.0	U	
METHYL ACETATE	1.0	U	
METHYL CYCLOHEXANE	1.0	U	
METHYL TERT-BUTYL ETHER	1.0	U	
METHYLENE CHLORIDE	1.0	U	
O-XYLENE	1.0	U	
STYRENE	1.0	U	
TETRACHLOROETHENE	1.0	UJ	C
TOLUENE	1.0	U	
TOTAL XYLENES	1.0	U	
TRANS-1,2-DICHLOROETHENE	1.0	U	
TRANS-1,3-DICHLOROPROPENE	1.0	U	
TRICHLOROETHENE	1.0	U	
TRICHLOROFLUOROMETHANE	1.0	U	
VINYL CHLORIDE	1.0	U	

nsample	08SSC005
samp_date	11/12/2007 1:00:00 PM
lab_id	TT02002-005
qc_type	NM
units	UG/KG
Pct_Solids	96.0
DUP_OF:	

Parameter	Result	Val Qual	Qual Code
1,1,1-TRICHLOROETHANE	1.0	U	
1,1,2,2-TETRACHLOROETHANE	1.0	U	
1,1,2-TRICHLOROETHANE	1.0	U	
1,1,2-TRICHLOROTRIFLUOROETHANE	1.0	U	
1,1-DICHLOROETHANE	1.0	U	
1,1-DICHLOROETHENE	1.0	U	
1,2,4-TRICHLOROBENZENE	1.0	U	
1,2-DIBROMO-3-CHLOROPROPANE	1.0	U	
1,2-DIBROMOETHANE	1.0	U	
1,2-DICHLOROBENZENE	1.0	U	
1,2-DICHLOROETHANE	1.0	U	
1,2-DICHLOROPROPANE	1.0	U	
1,3-DICHLOROBENZENE	1.0	U	
1,4-DICHLOROBENZENE	1.0	U	
2-BUTANONE	1.0	U	
2-HEXANONE	1.0	U	
4-METHYL-2-PENTANONE	1.0	U	
ACETONE	2.4	U	A
BENZENE	1.0	U	
BROMODICHLOROMETHANE	1.0	U	
BROMOFORM	1.0	U	
BROMOMETHANE	1.0	U	
CARBON DISULFIDE	1.0	U	
CARBON TETRACHLORIDE	1.0	U	
CHLOROBENZENE	1.0	U	
CHLORODIBROMOMETHANE	1.0	U	
CHLOROETHANE	1.0	U	
CHLOROFORM	1.0	U	
CHLOROMETHANE	1.0	UJ	C
CIS-1,2-DICHLOROETHENE	1.0	U	
CIS-1,3-DICHLOROPROPENE	1.0	U	
CYCLOHEXANE	1.0	U	

nsample	08SSC005
samp_date	11/12/2007 1:00:00 PM
lab_id	TT02002-005
qc_type	NM
units	UG/KG
Pct_Solids	96.0
DUP_OF:	

Parameter	Result	Val Qual	Qual Code
DICHLORODIFLUOROMETHANE	1.0	U	
ETHYLBENZENE	1.0	U	
ISOPROPYLBENZENE	1.0	U	
M+P-XYLENES	1.0	U	
METHYL ACETATE	1.0	U	
METHYL CYCLOHEXANE	1.0	U	
METHYL TERT-BUTYL ETHER	1.0	U	
METHYLENE CHLORIDE	1.0	U	
O-XYLENE	1.0	U	
STYRENE	1.0	U	
TETRACHLOROETHENE	1.0	UJ	C
TOLUENE	1.0	U	
TOTAL XYLENES	1.0	U	
TRANS-1,2-DICHLOROETHENE	1.0	U	
TRANS-1,3-DICHLOROPROPENE	1.0	U	
TRICHLOROETHENE	1.0	U	
TRICHLOROFLUOROMETHANE	1.0	U	
VINYL CHLORIDE	1.0	U	

PROJ_NO: 00352

SDG: TT02002 MEDIA: SOIL DATA FRACTION: OV

nsample	08SSC006	nsample	08SSC006
samp_date	11/12/2007 1:10:00 PM	samp_date	11/12/2007 1:10:00 PM
lab_id	TT02002-006	lab_id	TT02002-006
qc_type	NM	qc_type	NM
units	UG/KG	units	UG/KG
Pct_Solids	92.0	Pct_Solids	92.0
DUP_OF:		DUP_OF:	

Parameter	Result	Val Qual	Qual Code
1,1,1-TRICHLOROETHANE	0.88	U	
1,1,2,2-TETRACHLOROETHANE	0.88	U	
1,1,2-TRICHLOROETHANE	0.88	U	
1,1,2-TRICHLOROTRIFLUOROETHANE	0.88	U	
1,1-DICHLOROETHANE	0.88	U	
1,1-DICHLOROETHENE	0.88	U	
1,2,4-TRICHLOROBENZENE	0.88	U	
1,2-DIBROMO-3-CHLOROPROPANE	0.88	U	
1,2-DIBROMOETHANE	0.88	U	
1,2-DICHLOROBENZENE	0.88	U	
1,2-DICHLOROETHANE	0.88	U	
1,2-DICHLOROPROPANE	0.88	U	
1,3-DICHLOROBENZENE	0.88	U	
1,4-DICHLOROBENZENE	0.88	U	
2-BUTANONE	0.88	U	
2-HEXANONE	0.88	U	
4-METHYL-2-PENTANONE	0.88	U	
ACETONE	1.6	U	A
BENZENE	0.88	U	
BROMODICHLOROMETHANE	0.88	U	
BROMOFORM	0.88	U	
BROMOMETHANE	0.88	U	
CARBON DISULFIDE	0.88	U	
CARBON TETRACHLORIDE	0.88	U	
CHLOROBENZENE	0.88	U	
CHLORODIBROMOMETHANE	0.88	U	
CHLOROETHANE	0.88	U	
CHLOROFORM	0.88	U	
CHLOROMETHANE	0.88	UJ	C
CIS-1,2-DICHLOROETHENE	0.88	U	
CIS-1,3-DICHLOROPROPENE	0.88	U	
CYCLOHEXANE	0.88	U	

Parameter	Result	Val Qual	Qual Code
DICHLORODIFLUOROMETHANE	0.88	U	
ETHYLBENZENE	0.88	U	
ISOPROPYLBENZENE	0.88	U	
M+P-XYLENES	0.88	U	
METHYL ACETATE	0.88	U	
METHYL CYCLOHEXANE	0.88	U	
METHYL TERT-BUTYL ETHER	0.88	U	
METHYLENE CHLORIDE	0.88	U	
O-XYLENE	0.88	U	
STYRENE	0.88	U	
TETRACHLOROETHENE	0.88	UJ	C
TOLUENE	0.88	U	
TOTAL XYLENES	0.88	U	
TRANS-1,2-DICHLOROETHENE	0.88	U	
TRANS-1,3-DICHLOROPROPENE	0.88	U	
TRICHLOROETHENE	0.88	U	
TRICHLOROFLUOROMETHANE	0.88	U	
VINYL CHLORIDE	0.88	U	

APPENDIX E

SOIL SAMPLE LOG SHEETS

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: NSWC Crane SWMU 8 106 Pond
Project No.: 112G00352 CTO 0020

Sample ID No.: 08SSW001
Sample Location: 08SB001
Sampled By: Goerdt
C.O.C. No.: 3267

[X] Surface Soil
[] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

		Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date:	10/3/2007			
Time:	12:50			
Method:	Plastic Trowel			
Monitor Reading (ppm	NA			

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
Field Analysis	FIELD	(2) 40 mL vial	YES	
VOCs	SW-846-8060B	(3) encore	YES	
% Moisture		(1) 4 oz jar	YES	

	CCs	Tube	Vial	Result		
Field Analysis	100	L	1st	> 3.0	ppm	
	100	LL	2nd	7.5	ppm	

OBSERVATIONS / NOTES:

Sample collected from east side of southern end of pond, between nodes 10 and 11.

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: NSWC Crane SWMU 8 106 Pond
Project No.: 112G00352 CTO 0020

Sample ID No.: 08SSW002
Sample Location: 08SB002
Sampled By: Goerdt
C.O.C. No.: 3267

[X] Surface Soil
[] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

		Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date:	10/3/2007			
Time:	12:58			
Method:	Plastic Trowel			
Monitor Reading (ppm	NA			

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
Field Analysis	FIELD	(2) 40 mL vial	YES	
VOCs	SW-846-8060B	(3) encore	YES	
% Moisture		(1) 4 oz jar	YES	

	CCs	Tube	Vial	Result		
Field Analysis	100	L	1st	Non-detect		
	100	LL	1st	Non-detect		
	100	LL	2nd	Non-detect		

OBSERVATIONS / NOTES:

Sample collected from southeast corner of pond between nodes 9 and 10.

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: NSWC Crane SWMU 8 106 Pond
Project No.: 112G00352 CTO 0020

[X] Surface Soil
[] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Sample ID No.: 08SSW003
Sample Location: 08SB003
Sampled By: Goerdt
C.O.C. No.: 3267

Type of Sample:
[] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

		Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date:	10/3/2007			
Time:	13:05			
Method:	Plastic Trowel			
Monitor Reading (ppm	NA			

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
Field Analysis	FIELD	(2) 40 mL vial	YES	
VOCs	SW-846-8060B	(3) encore	YES	
% Moisture		(1) 4 oz jar	YES	

	CCs	Tube	Vial	Result		
Field Analysis	100	LL	1st	1.0	ppm	

OBSERVATIONS / NOTES:

Sample collected from south end of east side of pond between nodes 8 and 9.

MAP:

rcle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: NSWC Crane SWMU 8 106 Pond
Project No.: 112G00352 CTO 0020

[X] Surface Soil
[] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Sample ID No.: 08SSW004
Sample Location: 08SB004
Sampled By: Goerdt
C.O.C. No.: 3267

Type of Sample:
[] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

		Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date:	10/3/2007			
Time:	13:15			
Method:	Plastic Trowel			
Monitor Reading (ppm	NA			

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
Field Analysis	FIELD	(2) 40 mL vial	YES	
VOCs	SW-846-8060B	(3) encore	YES	
% Moisture		(1) 4 oz jar	YES	

	CCs	Tube	Vial	Result		
Field Analysis	100	LL	1st	> 3.0	ppm	
	100	L	2nd	Non-detect	ppm	
	100	LL	2nd	0.7	ppm	

OBSERVATIONS / NOTES:

Sample collected from east side of pond between nodes 7 and 8.

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: NSWC Crane SWMU 8 106 Pond
Project No.: 112G00352 CTO 0020

Sample ID No.: 08SSW005
Sample Location: 08SB005
Sampled By: Goerdt
C.O.C. No.: 3267

[X] Surface Soil
[] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

		Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date:	10/3/2007			
Time:	13:25			
Method:	Plastic Trowel			
Monitor Reading (ppm	NA			

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
Field Analysis	FIELD	(2) 40 mL vial	YES	
VOCs	SW-846-8060B	(3) encore	YES	
% Moisture		(1) 4 oz jar	YES	

	CCs	Tube	Vial	Result		
Field Analysis	100	LL	1st	Non-detect		
	100	LL	2nd	Non-detect		
	100	LL	1st	Non-detect	duplicate	
	100	LL	2nd	Non-detect	duplicate	

OBSERVATIONS / NOTES:

Sample collected from northeast corner of pond between nodes 6 and 7.

Duplicate vials collected

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: NSWC Crane SWMU 8 106 Pond
Project No.: 112G00352 CTO 0020

Sample ID No.: 08SSW006
Sample Location: 08SB006
Sampled By: Goerdt
C.O.C. No.: 3267

[X] Surface Soil
[] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

		Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date:	10/3/2007			
Time:	13:30			
Method:	Plastic Trowel			
Monitor Reading (ppm	NA			

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
Field Analysis	FIELD	(2) 40 mL vial	YES	
VOCs	SW-846-8060B	(3) encore	YES	
% Moisture		(1) 4 oz jar	YES	

	CCs	Tube	Vial	Result		
Field Analysis	100	LL	1st	Non-detect	ppm	
	100	LL	2nd	Non-detect	ppm	

OBSERVATIONS / NOTES:

Sample collected from east side of north end of pond between nodes 5A and 6.

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.: 08FD10030701

Signature(s):

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: NSWC Crane SWMU 8 106 Pond
Project No.: 112G00352 CTO 0020

[X] Surface Soil
[] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Sample ID No.: 08SSW007
Sample Location: 08SB007
Sampled By: Goerdt
C.O.C. No.: 3267

Type of Sample:
[] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

		Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date:	10/3/2007			
Time:	13:46			
Method:	Plastic Trowel			
Monitor Reading (ppm	NA			

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
Field Analysis	FIELD	(2) 40 mL vial	YES	
VOCs	SW-846-8060B	(3) encore	YES	
% Moisture		(1) 4 oz jar	YES	

	CCs	Tube	Vial	Result		
Field Analysis	100	LL	1st	Non-detect	ppm	
	100	LL	2nd	Non-detect	ppm	

OBSERVATIONS / NOTES:

Sample collected from northwest corner of pond between nodes 4 and 5.

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: NSWC Crane SWMU 8 106 Pond
Project No.: 112G00352 CTO 0020

Sample ID No.: 08SSW008
Sample Location: 08SB008
Sampled By: Goerdt
C.O.C. No.: 3267

[X] Surface Soil
[] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

		Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date:	10/3/2007			
Time:	13:52			
Method:	Plastic Trowel			
Monitor Reading (ppm	NA			

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
Field Analysis	FIELD	(2) 40 mL vial	YES	
VOCs	SW-846-8060B	(3) encore	YES	
% Moisture		(1) 4 oz jar	YES	

	CCs	Tube	Vial	Result		
Field Analysis	100	LL	1st	Non-detect	ppm	
	100	LL	2nd	Non-detect	ppm	

OBSERVATIONS / NOTES:

Sample collected from west side of north end of pond between nodes 5 and 5A.

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: NSWC Crane SWMU 8 106 Pond
Project No.: 112G00352 CTO 0020

[X] Surface Soil
[] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Sample ID No.: 08SSW009
Sample Location: 08SB009
Sampled By: Goerdt
C.O.C. No.: 3267

Type of Sample:
[] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

		Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date:	10/3/2007			
Time:	14:00			
Method:	Plastic Trowel			
Monitor Reading (ppm	NA			

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
Field Analysis	FIELD	(2) 40 mL vial	YES	
VOCs	SW-846-8060B	(3) encore	YES	
% Moisture		(1) 4 oz jar	YES	

	CCs	Tube	Vial	Result		
Field Analysis	100	LL	1st	> 3.0	ppm	
	100	L	2nd	3.0	ppm	

OBSERVATIONS / NOTES:

Sample collected from northern end of west side of pond between nodes 3 and 4.

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: NSWC Crane SWMU 8 106 Pond
Project No.: 112G00352 CTO 0020

[X] Surface Soil
[] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Sample ID No.: 08SSW010
Sample Location: 08SB010
Sampled By: Goerdt
C.O.C. No.: 3267

Type of Sample:
[] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

		Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date:	10/3/2007			
Time:	14:04			
Method:	Plastic Trowel			
Monitor Reading (ppm	NA			

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
Field Analysis	FIELD	(2) 40 mL vial	YES	
VOCs	SW-846-8060B	(3) encore	YES	
% Moisture		(1) 4 oz jar	YES	

	CCs	Tube	Vial	Result		
Field Analysis	100	LL	1st	Non-detect	ppm	
	100	LL	2nd	Non-detect	ppm	

OBSERVATIONS / NOTES:

Sample collected from the west side of pond between nodes 2 and 3.

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: NSWC Crane SWMU 8 106 Pond
Project No.: 112G00352 CTO 0020

[X] Surface Soil
[] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Sample ID No.: 08SSW011
Sample Location: 08SB011
Sampled By: Goerdt
C.O.C. No.: 3267

Type of Sample:
[] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

		Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date:	10/3/2007			
Time:	14:20			
Method:	Plastic Trowel			
Monitor Reading (ppm	NA			

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
Field Analysis	FIELD	(2) 40 mL vial	YES	
VOCs	SW-846-8060B	(3) encore	YES	
% Moisture		(1) 4 oz jar	YES	

	CCs	Tube	Vial	Result		
Field Analysis	100	LL	1st	Non-detect	ppm	
	100	LL	2nd	0.5	ppm	
	100	LL	2nd	0.2	ppm	
	100	LL	2nd	0.9	ppm	

OBSERVATIONS / NOTES:

Sample collected from the southwest corner of pond bewteen nodes 1 and 2.

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:
YES	

Signature(s):

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: NSWC Crane SWMU 8 106 Pond
Project No.: 112G00352 CTO 0020

Sample ID No.: 08SSW012
Sample Location: 08SB012
Sampled By: Goerdt
C.O.C. No.: 3267

[X] Surface Soil
[] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

		Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date:	10/3/2007			
Time:	14:25			
Method:	Plastic Trowel			
Monitor Reading (ppm	NA			

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
Field Analysis	FIELD	(2) 40 mL vial	YES	
VOCs	SW-846-8060B	(3) encore	YES	
% Moisture		(1) 4 oz jar	YES	

	CCs	Tube	Vial	Result		
Field Analysis	100	LL	1st	Non-detect	ppm	
	100	LL	2nd	Non-detect	ppm	

OBSERVATIONS / NOTES:

Sample collected from the west end of south side of pond between nodes 12 and 1.

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: NSWC Crane SWMU 8 106 Pond
Project No.: 112G00352 CTO 0020

Sample ID No.: 08SSW013
Sample Location: 08SB013
Sampled By: Goerdt
C.O.C. No.: 3267

[X] Surface Soil
[] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

		Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date:	10/3/2007			
Time:	14:35			
Method:	Plastic Trowel			
Monitor Reading (ppm	NA			

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
Field Analysis	FIELD	(2) 40 mL vial	YES	
VOCs	SW-846-8060B	(3) encore	YES	
% Moisture		(1) 4 oz jar	YES	

	CCs	Tube	Vial	Result		
Field Analysis	100	LL	1st	1.1	ppm	
	100	LL	2nd	0.6	ppm	
	100	LL	1st	1.2	ppm	
	100	LL	2nd	1.1	ppm	

OBSERVATIONS / NOTES:

Sample collected from the west side of south end of pond between nodes 11 and 12.

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: NSWC Crane SWMU 8 106 Pond
Project No.: 112G00352 CTO 0020

Sample ID No.: 08SSW014
Sample Location: 08SB014
Sampled By: Goerdt
C.O.C. No.: 3268

[X] Surface Soil
[] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

		Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date:	10/4/2007			
Time:	9:00			
Method:	Plastic Trowel			
Monitor Reading (ppm	NA			

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
Field Analysis	FIELD	(2) 40 mL vial	YES	
VOCs	SW-846-8060B	(3) encore	YES	
% Moisture		(1) 4 oz jar	YES	

	CCs	Tube	Vial	Result		
Field Analysis	100	LL	1st	0.3	ppm	

OBSERVATIONS / NOTES:

Sample collected from the west side of south end of pond at node 9.
Sample was collected after additional excavation in the area of node 9.

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: NSWC Crane SWMU 8 106 Pond
Project No.: 112G00352 CTO 0020

[X] Surface Soil
[] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Sample ID No.: 08SSW015
Sample Location: 08SB015
Sampled By: Goerdt
C.O.C. No.: 3268

Type of Sample:
[] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

		Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date:	10/4/2007			
Time:	9:07			
Method:	Plastic Trowel			
Monitor Reading (ppm	NA			

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
Field Analysis	FIELD	(2) 40 mL vial	YES	
VOCs	SW-846-8060B	(3) encore	YES	
% Moisture		(1) 4 oz jar	YES	

	CCs	Tube	Vial	Result		
Field Analysis	100	M	1st	> 100	ppm	

OBSERVATIONS / NOTES:

Sample collected from the west side of south end of pond.
Sample was collected after additional excavation in the area of node 11.

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: NSWC Crane SWMU 8 106 Pond
Project No.: 112G00352 CTO 0020

Sample ID No.: 08SSW016
Sample Location: 08SB016
Sampled By: Goerdt
C.O.C. No.: 3268

[X] Surface Soil
[] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

		Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date:	10/4/2007			
Time:	9:12			
Method:	Plastic Trowel			
Monitor Reading (ppm	NA			

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
Field Analysis	FIELD	(2) 40 mL vial	YES	
VOCs	SW-846-8060B	(3) encore	YES	
% Moisture		(1) 4 oz jar	YES	

	CCs	Tube	Vial	Result		
Field Analysis	100	LL	1st	Non-detect	ppm	

OBSERVATIONS / NOTES:

Sample collected from the west side of south end of pond at node 1.
Sample was collected after additional excavation in the area of node 1.

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: NSWC Crane SWMU 8 106 Pond
Project No.: 112G00352 CTO 0020

[X] Surface Soil
[] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Sample ID No.: 08SSC001
Sample Location: 08SBC001
Sampled By: Goerdt
C.O.C. No.: 0188

Type of Sample:
[] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

		Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date:	11/12/2007			
Time:	12:30			
Method:	Plastic Trowel			
Monitor Reading (ppm	NA			

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	SW-846-8060B	(3) encore	YES	
% Moisture		(1) 4 oz jar	YES	

OBSERVATIONS / NOTES:

Sample collected from the Baker water tank storage area.

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: NSWC Crane SWMU 8 106 Pond
Project No.: 112G00352 CTO 0020

Sample ID No.: 08SSC002
Sample Location: 08SBC002
Sampled By: Goerdt
C.O.C. No.: 0188

[X] Surface Soil
[] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

		Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date:	11/12/2007			
Time:	12:37			
Method:	Plastic Trowel			
Monitor Reading (ppm	NA			

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	SW-846-8060B	(9) encore	YES	
% Moisture		(1) 4 oz jar	YES	

OBSERVATIONS / NOTES:

Sample collected from the Baker water tank storage area.

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:
Yes - VOCs	

Signature(s):

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: NSWC Crane SWMU 8 106 Pond
Project No.: 112G00352 CTO 0020

Sample ID No.: 08SSC003
Sample Location: 08SBC003
Sampled By: Goerdt
C.O.C. No.: 0188

[X] Surface Soil
[] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

		Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date:	11/12/2007			
Time:	12:44			
Method:	Plastic Trowel			
Monitor Reading (ppm	NA			

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	SW-846-8060B	(3) encore	YES	
% Moisture		(1) 4 oz jar	YES	

OBSERVATIONS / NOTES:

Sample collected from the Baker water tank storage area.

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: NSWC Crane SWMU 8 106 Pond
Project No.: 112G00352 CTO 0020

Sample ID No.: 08SSC004
Sample Location: 08SBC004
Sampled By: Goerdt
C.O.C. No.: 0188

[X] Surface Soil
[] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

		Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date:	11/12/2007			
Time:	12:52			
Method:	Plastic Trowel			
Monitor Reading (ppm	NA			

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	SW-846-8060B	(3) encore	YES	
% Moisture		(1) 4 oz jar	YES	

OBSERVATIONS / NOTES:

Sample collected from the Decon area.

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: NSWC Crane SWMU 8 106 Pond
Project No.: 112G00352 CTO 0020

Sample ID No.: 08SSC005
Sample Location: 08SBC005
Sampled By: Goerdt
C.O.C. No.: 0188

[X] Surface Soil
[] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Type of Sample:
[] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

		Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date:	11/12/2007			
Time:	13:00:00 PM			
Method:	Plastic Trowel			
Monitor Reading (ppm	NA			

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	SW-846-8060B	(3) encore	YES	
% Moisture		(1) 4 oz jar	YES	

OBSERVATIONS / NOTES:

Sample collected from path of trucks from fill area to asphalt road.

MAP:

Circle if Applicable:

MS/MSD

Duplicate ID No.:

Signature(s):

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Project Site Name: NSWC Crane SWMU 8 106 Pond
Project No.: 112G00352 CTO 0020

[X] Surface Soil
[] Subsurface Soil
[] Sediment
[] Other:
[] QA Sample Type:

Sample ID No.: 08SSC006
Sample Location: 08SBC006
Sampled By: Goerdt
C.O.C. No.: 0188

Type of Sample:
[] Low Concentration
[] High Concentration

GRAB SAMPLE DATA:

		Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date:	11/12/2007			
Time:	13:10:00 PM			
Method:	Plastic Trowel			
Monitor Reading (ppm	NA			

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	SW-846-8060B	(3) encore	YES	
% Moisture		(1) 4 oz jar	YES	

OBSERVATIONS / NOTES:

Sample collected from the area where the trucks were loaded.

MAP:

Circle if Applicable:

MS/MSD	Duplicate ID No.:
	08FD11120701

Signature(s):

APPENDIX F

DAILY ACTIVITY LOGS (TETRA TECH)

DAILY / 'ITY LOG

SWMU 8 BUILDING 106 POND
NSWC CRANE
CRANE, INDIANA

Date	Time	Author	Notes
4/16/2007	17:45	James Goerdt	JG stopped by SWMU 8 to check on progress of activities. Does not appear as though any mobilization has yet taken place by contractor (TolTest). Utilities appear to have all been marked. Photos taken (2831, 2833-2837). Crane Police stopped by to check on things. JG left SWMU 8 at 18:05 enroute to Bldg 3245.
4/24/2007	14:45	James Goerdt	JG spoke with Gary Reside from TolTest. Gary indicated that they were almost finished with the demolition of the utility area and wanted to know if we were going to sample within the hole. He indicated that the concrete vault was thick and in good condition with no cracks observed in the concrete. He also indicated that the soil did not appear to have any staining or discoloration. JG informed him to leave the hole open and he would contact him in the morning as how to proceed. JG then left a message for Tom Brent regarding this issue. The Work Plan calls for no sampling within the utility area, but JG wanted to make sure this was still the case.
4/25/2007	9:30	James Goerdt	JG spoke with Tom brent regarding any possible samples within the utility area. Tom said not to collect any samples and that if sample(s) were warranted in the future then we could go back in with DPT and collect a sample. JG then left a voice message with Gary (TolTest) that no samples would be collected within the utility area and that he should go ahead and fill in the hole.
4/30/2007	14:00	James Goerdt	JG arrives on-site. No one else around. All trees around the pond have been cleared. There were only 5-6 large trees, all else was mainly under brush. Four large portable holding tanks on site. Each with a capacity of 22,000 gallons (Baker Tanks). E-Z stacker QED air stripper on site. Demo on the utility station continues. Very thick concrete with lots of reinforcing rebar. Dump truck parked near the station filled with soil and debris most likely from utility station demo. Silt fence has been installed along west side of pond.
4/30/2007	14:30	James Goerdt	JG phoned Gary Resides to let him know flashers were blinking on one of the backhoes. Wasn't sure this was intentional and may wear down the battery. Gary said he wasn't sure, but would contact site supervisor Wayne Moore. Gary indicated work had been delayed due to rain and also he was trying to find decent soil to use for the berm around the portable tanks.
4/30/2007	15:40	James Goerdt	JG left site enroute to Bldg 3245. Along the way received call from Wayne Moore who said the flashers should not be on and that they would wear down the battery. JG turned around and went back to SWMU 8 and turned off the flashers.
5/1/2007	17:00	James Goerdt	JG arrives at SWMU 8. Some additional soil removed from pump station and stockpiled next to the hole. Pumping of pond has not yet started.

DAILY ACTIVITY LOG

SWMU 8 BUILDING 106 POND
NSWC CRANE
CRANE, INDIANA

5/2/2007	13:15	James Goerdt	Arrived at SWMU 8 and spoke with Wayne Moore (TolTest). They had started the pumping of the pond. Water level had dropped approximately 8 inches. TolTest was in the process of finishing the placement of the liner (Enviro 6000) under two of the remaining storage tanks. An earth berm was being built around the perimeter of the tanks and the liner would capture any spillage or leakage from the tanks. One of the tanks was removed from the site based on not being needed. Wayne indicated that they would most likely not be needing me to collect confirmation samples until late next week at the earliest. Plans are for a "wait and see" mode. Tetra Tech not planning to be on-site the week of May 7th-11th, unless asked otherwise by TolTest. Wayne indicated that they planned to start the air stripper up in the morning. JG to check back on progress tomorrow. The base and lower sides of the pump house to be buried as is due to the thickness of the concrete and the level of effort required in removing it. Very thick concrete with a large amount of rebar.
5/3/2007	9:00	James Goerdt	JG arrived at SWMU 8. Spoke with Wayne Moore regarding progress. Currently they have pumped approximately 20,000 gallons from the pond. Pond water volume appears to be about 50-60% pumped out. Fairly heavy rains yesterday probably added additional volume to the pond. The earth berm and liner are in place under two of the large holding tanks and the air stripper. The air stripper was not yet been hooked up. JG discussed schedule with Wayne and it was decided that Tetra Tech would not be back on-site until May 14th. JG will contact Wayne early next week to check on progress. If necessary, Tetra Tech would be able to be on-site the later part of next week.
5/3/2007	17:30	James Goerdt	JG leaves Crane.
5/7/2007	13:20	James Goerdt	JG spoke with Wayne Moore (TolTest) via telephone inquiring on progress at SWMU 8. Mr. Moore indictaed that they have completed running the initial 20,0000 gallons of water removed from the pond through the air stripper. He indicated they were going to be grabbing a water sample from the treated water to determine its disposal. There is still some water in the pond left to be pumped out. He estimated an area approximately 10'x25' and fairly deep (3 to 4' ??). JG to contact Mr. Moore later in the week for another update. JG still on schedule to return to the site on May 14th.
5/11/2007	13:30	James Goerdt	JG spoke with Wayne Moore of TolTest. Wayne indicated that the initial sediment sample pulled by TolTest earlier in the week was prior to the addition of the saw dust being used as the absorbent therefore, they are required to resubmit a sample that includes the saw dust mixed in. They are currently stockpiling the sediment in the middle of the pond and letting the water drain towards the shallow end of the pond where it is then being pumped out. They have finished stripping the water from the initial holding tank and plans are to start trucking it to the Crane WTP on Monday. Wayne indicated they may be ready for confirmation sampling on Wednesday. JG has delayed travel plans until at least Tuesday, and will call Wayne on Monday to check on progress.

DAILY A TY LOG

SWMU 8 BUILDING 106 POND
NSWC CRANE
CRANE, INDIANA

5/14/2007	10:20	James Goerdt	Tetra Tech received a copy of analysis report on water sample collected from the treated water tank by TolTest. JG phoned Wayne Moore (TolTest) to get a progress report on activities. The phone connection was bad and calls were dropped twice. Wayne did inform JG that something was not right regarding a result on the test and that they were asked by the Navy (Tom Brent) to resample. JG then left a voice mail for Gary Reside (TolTest) asking that he call with an update so JG could determine his schedule for collecting verification samples on the ponds side walls.
5/14/2007	12:30	James Goerdt	JG spoke with Gary Reside (TolTest) and he indicated that they didn't have to resample the treated water, they just needed to get a longer list of results from the lab. The original analyses list did not include some things that the Navy wanted to see. Gary just had to contact the lab and have them send him the additional results. The waste characterization sample results have been sent to the landfill (Sycamore Ridge?), and TolTest is now just waiting to hear from the landfill if they will accept it. Hopefully hear sometime today. Once they get confirmation, they will begin trucking waste off-site. Gary will be sending Tetra Tech a copy of the waste characteristic results that he has forwarded onto the landfill. Still utilizing the pond itself as a dewatering point. Indicated the saw dust was working really well. Stockpiling sludge on high end and letting gravity drain to low end where it is pumped out. Gary estimated GW infiltration to be relatively slow at ~10gallons over a 24 hour period. No definite time schedule as to when they will be ready for Tetra Tech confirmation sampling. JG asked Gary to please contact him as soon as possible so he can set his schedul
5/18/2007	10:40	James Goerdt	JG left a voice mail with Wayne Moore (TolTest) asking that he or Gary Reside (TolTest) return my call as soon as possible to give me an update on progress and so JG can determine his schedule for next week.
5/18/2007	11:00	James Goerdt	JG spoke with Wayne Moore (TolTest). They are in the process of transferring treated water from the staging tank to the Crane WTP. He indicated they would probably have the main storage tank empty by this afternoon. No soil has yet been transferred off-site. Wayne stated the Navy will not allow them to transfer any of the material off-site until the analyticals come back from lab. They did get original analyses back, but then the Navy requested they submit a second sample that included the absorbent (sawdust). He was not sure when they would be getting that back from the lab, but once they do he believes they will be able to move all the dirt out in a two day period. JG the phoned Gary Reside (TolTest) who informed him the soil sample was sent to the lab yesterday (5/17/07) and with a 24 hr turn around, he expects to hear something back on Monday or Tuesday. Landfill is located about 2 hours away, but trucking company had promised him approximately 20 trucks so there should be no down time once the transfer begins. JG will contact Gary again on Monday.

DAILY ACTIVITY LOG

SWMU 8 BUILDING 106 POND
NSWC CRANE
CRANE, INDIANA

5/29/2007	16:00	James Goerdt	JG phoned Wayne Moore (TolTest) to get an update on progress at SWMU 8. Wayne indicated they are still waiting for approval to have the stockpiled soil removed. They currently have transferred approximately 21, 000 gallons of treated water to the NSWC Crane WTP holding tank(s). The WTP operators indicated they will be transferring the water at approximately 400 gallons per day. Wayne also indicated that he has another 16,000 gallons of treated water in a holding tank at the SWMU 8 pond site. He's not sure when they will get the OK to start hauling the soil off-site. JG will contact Tom Brent tomorrow to get an update from him. Wayne did forward some photos to JG of the work at SWMU 8.
5/31/2007	14:00	James Goerdt	JG received e-mail from Gary Reside (TolTest) showing the analysis results for both sludge and water taken from the SWMU 8 Pond. JG contacted Tom Brent (Crane) who indicated that he too had received the analyses and was currently reviewing them.
9/18/2007	9:30	James Goerdt	JG spoke with Gary reside form TolTest. Mr. Reside indicated that they plan to start removing the pond sediment on Tuesday (9/25/07). He will have 20 trucks available and plans to have the initial removal completed in 2 to 2 1/2 days. I informed him that Tetra Tech personnel is planning to be on-site on Tuesday afternoon and would like to grab samples from the west and north bank. We would then field analyze those samples that afternoon and have results available Wednesday morning. He indicated they would be willing to use their backhoe to grab the samples for us so we don't have to enter the pond excavation. The Navy will then be informed of the field analysis at which time they will make a decision whether or not to extend the excavation.
9/30/2007	15:00	James Goerdt	JG received an e-mail from Gary Reside (TolTest) indicating that removal of the sediment from the Pond would begin on Tuesday, October 2nd.
10/3/2007	9:50	James Goerdt	JG arrives at SWMU 8. Currently loading sediment into tractor trailers. Between loads, JG grabs a sample from the waste pile just to test field analysis kit. Additional samples to be collected this afternoon after more excavation of the side walls.
10/4/2007	10:24	James Goerdt	JG back at Bldg 3245 to run analysis on soil sample and to complete chain of custody on previous samples collected.
11/11/2007	18:00	James Goerdt	JG travel from Pittsburgh to Bloomington.
11/12/2007	8:00	James Goerdt	JG to Office Depot to purchase strapping tape to be used in securing sample coolers for shipping.
11/12/2007	9:00	James Goerdt	JG arrives at the NSWC Crane front gate to get visitor pass.
11/12/2007	9:30	James Goerdt	JG arrives at Bldg 3245. Prepares for soil sample collection at SWMU 8.

DAILY A ITY LOG

SWMU 8 BUILDING 106 POND
NSWC CRANE
CRANE, INDIANA

11/12/2007	10:00	James Goerdt	JG arrives at SWMU 8 to find the area where the Baker tanks had been located was now covered in approximately 10-12 inches of 1-2" gravel. Area was essentially turned into a parking lot. The pond itself was sloped to the east down towards the existing drainage channel. It was seeded and covered in straw. Larger boulders were spread in the area where the slope met the actual drainage channel. The gravel made it difficult locating the staging areas and decon area difficult to find. JG phoned Joe Lucas in PGH office asking for GPS coordinates that were previously taken at SWMU 8. JG then phoned John Wright to have him convert the coordinates to Lat/Lon. Once this was completed, JG used the information to locate the areas needed for sampling. A single sample point was required for every 500 sq feet of lay down (staging) area. The Baker tank staging area was approximately 35x40 feet = 1,400 sq feet. JG collected 3 samples in the Baker tank staging area. One sample was collected in the area of decon, and two samples were collected along the path where the trucks were loaded and where they exited onto the asphalt drive. A shovel wa
11/12/2007	13:15	James Goerdt	JG completed sampling at SWMU 8. The sample locations wer ereturned to existing condition and the Lat?lon at each location was collected. JG returned to Bldg 3245 to finish processing the samples unloading vehicle. JG prepared a trip blank and a temp blank to accompany the samples to the lab. Some misc office work and cleaning was also completed.
11/12/2007	16:20	James Goerdt	JG leaves Crane en-route to Fed Ex in Bloomington to drop off samples.