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SITE ASSESSMENT REPORT FOR HARRY S TRUMAN ANIMAL IMPORT CENTER
REVISION 2 WITH TRANSMITTAL LETTER NAS KEY WEST FL
8/20/2003
TETRA TECH NUS

TETRA TECH NUS, INC.

AIK-03-0198

August 20, 2003

Project Number HK 4260 *via U.S. mail*

Byas Glover (Code 18410)
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SOUTHDIV NAVFACENGCOM
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Reference: CLEAN Contract No. N62467-94-D-0888
Contract Task Order No. 0254

Subject: Site Assessment Report for Harry S. Truman Animal Import Center, Rev. 2, Naval Air Facility Key West, Florida

Dear Mr. Glover:

I have enclosed the PDF file for the final Site Assessment Report (SAR) for the Harry S. Truman Animal Import Center, Rev. 2, Naval Air Facility (NAF) Key West, Florida. This document incorporates changes as a result of Florida Department of Environmental Protection comments received on the Rev. 1 version of the SAR. I am not expecting to receive any comments on this report.

Please call me at (803) 649-7963, extension 345, if you have any questions regarding the enclosed report.

Sincerely,

C. M. Bryan
Project Manager

CMB:spc

Enclosure

cc: Ms. Debbie Wroblewski (Cover Letter Only)
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Rev. 2
8/20/03

Site Assessment Report
for
Harry S. Truman Animal Import Center

Naval Air Station
Key West, Florida

Southern Division
Naval Facilities Engineering Command

Contract Number N62467-94-D-0888
Contract Task Order 0254

August 2003

Rev. 2
8/20/03

SITE ASSESSMENT REPORT
FOR
HARRY S. TRUMAN ANIMAL IMPORT CENTER

NAVAL AIR STATION
KEY WEST, FLORIDA

COMPREHENSIVE LONG-TERM
ENVIRONMENTAL ACTION NAVY (CLEAN) CONTRACT

Submitted to:
Southern Division
Naval Facilities Engineering Command
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North Charleston, South Carolina 29406

Submitted by:
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CONTRACT NUMBER N62467-94-D-0888
CONTRACT TASK ORDER 0254

AUGUST 2003

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PROFESSIONAL CERTIFICATION

Site Assessment Report
Harry S. Truman Animal Import Center
Key West, Florida

The Site Assessment Report was prepared under the direct supervision of the undersigned geologist using geologic and hydrogeologic principles standard to the profession at the time the report was prepared. If conditions are determined to exist that differ from those described, the undersigned geologist should be notified to evaluate the effects of additional information on the assessment described in this report. This report was developed specifically for the referenced site and should not be construed to apply to any other site.

Amanda Shearer, P.G.
Florida License No. PG0001116

Aug 15, 2003
Date

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ACRONYMS/ABBREVIATIONS

ABB	ABB Environmental Services, Inc.
A/G	Aboveground
B&RE	Brown and Root Environmental, Inc.
bls	Below land surface
BTEX	Benzene, Toluene, Ethylbenzene, Xylenes
CoC	Contaminant of Concern
CTO	Contract Task Order
DPT	Direct Push Technology
DRO	Diesel Range Organic
DTW	Depth to Water
EDB	Ethylene Dibromide
EPA	United States Environmental Protection Agency
FAC	Florida Administrative Code
FDEP	Florida Department of Environmental Protection
FID	Flame Ionization Detector
FKAA	Florida Keys Aqueduct Authority
FL-PRO	Florida Petroleum Residual Organics
GAC	Granular-activated Carbon
GAG	Gasoline Analytical Group
GCTL	Groundwater Cleanup Target Level
HSA	Hollow-stem Auger
HSTAIC	Harry S. Truman Animal Import Center
ID	Inside Diameter
IDW	Investigation Derived Waste
IR	Installation Restoration
K	Hydraulic Conductivity
KAG	Kerosene Analytical Group
µg/L	Micrograms per Liter
mg/kg	Milligrams per Kilogram
mg/L	Milligrams per Liter
msl	Mean Sea Level
MTBE	Methyl-tertiary butyl ether
NAS	Naval Air Station
OVA	Organic Vapor Analyzer
PAH	Polynuclear Aromatic Hydrocarbon

PE	Polyethylene
ppm	Parts per Million
PVC	Polyvinyl Chloride
RCRA	Resource Conservation and Recovery Act
SAR	Site Assessment Report
SCTL	Soil Cleanup Target Level
SOP	Standard Operating Procedure
SOUTHNAVFACENGCOM	Southern Division, Naval Facilities Engineering Command
SWL	Static Water Level
SWMU	Solid Waste Management Unit
TOC	Top of Casing
TOX	Total Organic Halide
TRPH	Total Recoverable Petroleum Hydrocarbon
TtNUS	Tetra Tech NUS, Inc.
UST	Underground Storage Tank
VOC	Volatile Organic Compound

EXECUTIVE SUMMARY

Tetra Tech NUS, Inc. (TtNUS) has been authorized by Southern Division, Naval Facilities Engineering Command (SOUTHNAVFACENGCOM) to prepare a Site Assessment Report (SAR) for the Harry S. Truman Animal Import Center (HSTAIC) underground storage tank (UST) site at Naval Air Station (NAS) Key West, Florida. This SAR has been prepared to evaluate soil and groundwater conditions at the former site of two 4,000-gallon USTs that stored diesel fuel.

Site Assessment Activities

The following site assessment activities were conducted by TtNUS:

- Reviewed available Navy documents to collect historical information about the site, evaluate public and private potable wells, locate utility line areas, locate nearby surface water bodies, and assess surface hydrology and drainage,
- Conducted a preliminary assessment of soil and groundwater at the former location of the USTs using Direct Push Technology (DPT) methods,
- Collected soil samples from three locations for laboratory analysis of volatile organic compounds (VOCs), polynuclear aromatic hydrocarbons (PAHs), total recoverable petroleum hydrocarbons (TRPH), total organic halides (TOX), and lead,
- Installed four shallow monitoring wells and one deep monitoring well to assess the horizontal and vertical extent of contamination,
- Collected groundwater samples from the permanent monitoring wells for laboratory analysis of VOCs, PAHs, ethylene dibromide (EDB), TRPH, and lead,
- Conducted a study to evaluate the effects of tidal influences on the movement of groundwater at the site.

Conclusions

The following conclusions were drawn based on site assessment activities:

- Concentrations of petroleum contaminants detected in the soil samples collected for this investigation were below Soil Cleanup Target Levels (SCTLs) for Residential Direct Exposure, as specified in the Florida Administrative Code (FAC) Chapter 62-777, Table II.
- Free product was not observed during the site assessment activities.

- Concentrations of petroleum contaminants of concern (CoCs) in site groundwater were below the Groundwater Cleanup Target Levels (GCTLs), as specified in FAC Chapter 62-777, Table I for two consecutive sampling events.

Recommendation

Based on the hydrogeological and chemical data presented in this SAR and the requirements of Chapter 62-770, FAC., TtNUS recommends that No Further Action status be granted for the site.

1.0 SITE DESCRIPTION AND BACKGROUND INFORMATION

TtNUS under contract with SOUTHNAVFACENGCOM, is submitting this SAR documenting the findings of the site assessment performed at the HSTAIC former UST site at NAS Key West, Florida. This SAR was prepared on behalf of the Navy under Contract No. N62467-94-D-0888, Contract Task Order (CTO) 0254, and summarizes the environmental assessment activities conducted by TtNUS at the HSTAIC.

1.1 SITE LOCATION AND CONDITIONS

Key West is located in southern Monroe County, Florida, approximately 150 miles southwest of Miami. The HSTAIC is located on Fleming Key, north of the island of Key West (Figure 1-1). The total area of the HSTAIC site is approximately 18.4 acres. The HSTAIC was built over the Fleming Key North Landfill, Installation Restoration (IR) site 7.

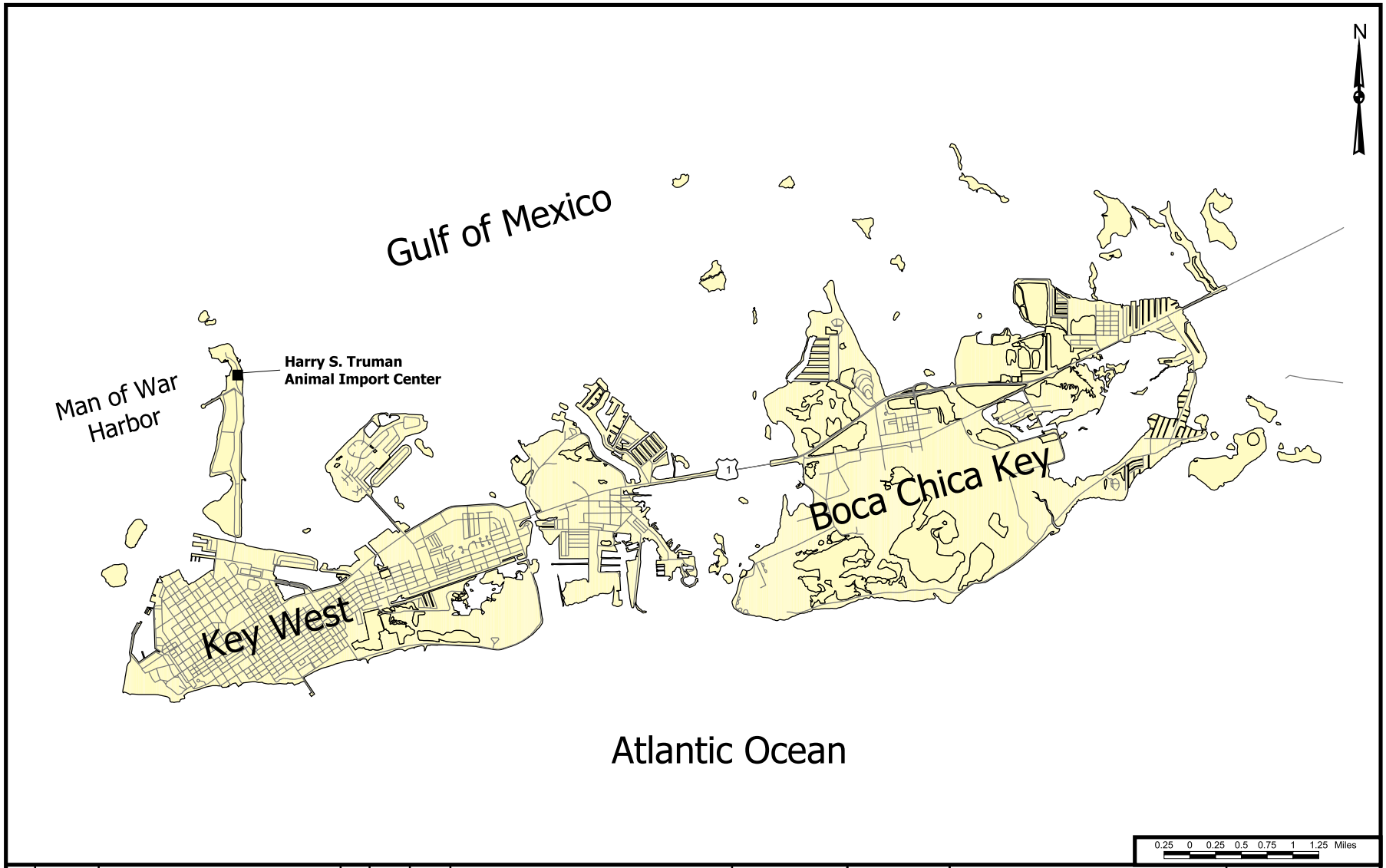
The HSTAIC site consists of a concrete barn, an equipment storage building, a wastewater treatment plant, a steel water tank, a concrete truck/equipment washdown area, a gravel/grass parking area, asphalt drives, and an open grass area (Figure 1-2). The ground surface at the site consists of gravel fill material, grass, and weeds. The southwest, west, and northwest sides of the site are wooded with trees and brush (Hanson Engineers, 1999).

1.2 SITE HISTORY

In May 1998, Hanson Engineers collected soil samples around three USTs located on the HSTAIC site. One 8,000-gallon UST was located west of the barn and south of the steel water tank and stored diesel fuel for the emergency generator. Two 4,000-gallon USTs were located between the wastewater treatment plant and the barn and stored diesel fuel for the boilers and incinerators. It was determined that one or both of the 4,000-gallon tanks had impacted the site (Hanson Engineers, 1999).

1.3 REMEDIATION ACTIVITIES

In December 1998, the Navy removed the three USTs from the site. The Closure Assessment is included as Appendix B to this SAR. Contaminated soil was removed from the excavations and stockpiled on the east side of the concrete spill containment area and south of the steel water tank and transformer. The contaminated soil was covered with plastic, and the plastic was held down with concrete blocks. Contaminated groundwater was removed from the excavations and placed in 55-gallon drums. Soil and groundwater were later disposed based on analytical results. Soil and groundwater samples collected at that time indicated the presence of petroleum contamination under the asphalt drive north of the 4,000-gallon USTs (Hanson Engineers, 1999). One soil sample collected from under the asphalt drive produced a TRPH detection of 4,700 milligrams per kilogram (mg/kg).



NO.	DATE	REVISIONS	BY	CHKD	APPD	REFERENCES

DRAWN BY CM	DATE 12/18/2002
CHECKED BY EHM	DATE 12/18/2002
COST/SCHED-AREA	
SCALE AS NOTED	

SITE ASSESSMENT REPORT
FIGURE 1-1 REGIONAL MAP
HARRY S. TRUMAN
ANIMAL IMPORT CENTER
NAVAL AIR STATION
KEY WEST, FLORIDA

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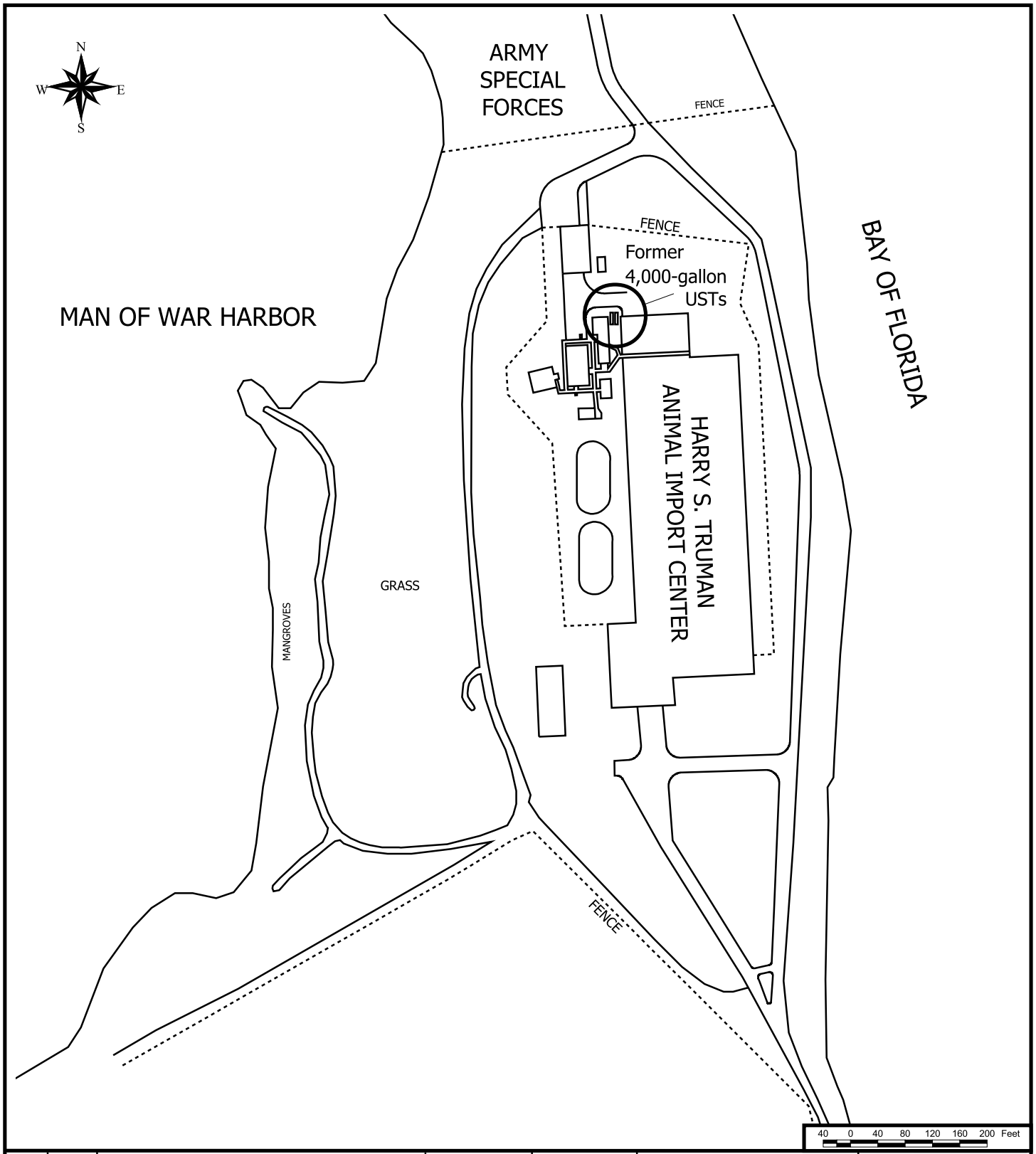

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SCALE AS NOTED	

SITE ASSESSMENT REPORT
FIGURE 1-2 SITE VICINITY MAP
HARRY S. TRUMAN
ANIMAL IMPORT CENTER
NAVAL AIR STATION
KEY WEST, FLORIDA

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2.0 SITE ASSESSMENT METHODOLOGY

Site assessment activities were carried out at the HSTAIC UST site in 2002. Initially, a DPT investigation was conducted in July 2002 to define the horizontal and vertical extent of contamination at the site. The DPT borings were placed in the location of the former 4,000-gallon USTs and north on the asphalt drive where the elevated TRPH detection was identified during tank removal activities. Soil samples were collected during this investigation for laboratory analysis and headspace screening. Groundwater samples were collected for on-site laboratory analysis. After this initial investigation was completed, monitoring wells were installed at the site. Groundwater samples were collected for off-site laboratory analysis and evaluation of natural attenuation parameters. Aquifer properties were evaluated using data collected during the monitoring well elevation survey, tidal study, and static water level (SWL) measurements, along with referenced slug test data (conducted at a site on Boca Chica Key). The results of the site assessment are discussed in Sections 3.0 and 4.0.

2.1 QUALITY ASSURANCE

The site assessment investigation was conducted in accordance with the Standard Operating Procedures (SOPs) prescribed by the Florida Department of Environmental Protection (FDEP) (DEP-SOP-001/01). Equipment used to advance the soil borings, install monitoring wells, and collect soil or groundwater samples was decontaminated prior to and following each use. Rinse water generated during the decontamination of equipment was placed in labeled 55-gallon drums, sampled, and removed for proper disposal. Organic vapor measurements were made with a Heath PortaFID II flame ionization detector (FID). Prior to each day's activities, the FID was field calibrated in accordance with manufacturer directions.

Groundwater samples were collected in pre-preserved containers obtained from Katahdin Analytical Services and Accura Analytical Laboratory. As part of the groundwater sampling event, quality control samples (i.e., equipment blanks and trip blanks) were prepared and submitted to the laboratory. Sampling activities were documented in a site-specific field logbook and samples were transmitted under chain-of-custody protocols to the laboratory.

2.2 SOIL BORING PROGRAM

The soil screening investigation was conducted at HSTAIC to evaluate the extent to which petroleum, previously detected in samples, had impacted the site soils. The soil screening investigation was conducted by installing 20 soil borings (AIC-SB-1 through -20), using DPT (Figure 2-1). Soil samples from the borings were collected for headspace screening with a FID. During the DPT field investigation, each soil boring was advanced below the water table in order to collect groundwater samples for mobile laboratory screening. Groundwater screening activities are discussed in Section 2.5.1.

2.2.1 Soil Core Sampling

Soil borings for the preliminary assessment were advanced using DPT. The USTs were located in an area that was built up approximately six feet above grade during construction of the HSTAIC. A retaining wall separates the built-up area from the asphalt driveway to the north. Soil borings were installed in this built up area, as well as through the asphalt driveway. Crushed oolitic limestone fill containing construction debris was encountered in the soil borings. Groundwater was encountered at approximately 10 feet bls in the built up area where the tanks had been located and at approximately 4 feet bls north of the retaining wall under the asphalt driveway. The soil borings were advanced approximately 4 feet into the subsurface and samples were collected in the 0- to 4-foot interval at each location. In the built up area south of the retaining wall, the borings were then advanced to groundwater (approximately 10 feet bls) so that groundwater screening samples could be collected for on-site analysis. The site geologist logged the soil properties, including texture, color, and soil moisture for each soil core and noted whether staining or odors were present. Soil boring logs are provided in Appendix C.

2.2.2 Soil Headspace Screening

Soil samples were collected at the 0-to-4-foot interval from each location for headspace screening in accordance with the procedures outlined in Section 62-770.200, FAC. From the interval, two 16-ounce glass jars were half-filled with the soil sample, sealed with aluminum foil, and labeled. The soil samples were allowed to equilibrate to ambient air temperature. The FID response to total headspace organic vapors was measured by inserting the FID probe through the foil sample cover and recording the highest instrument reading. If a positive response was observed when screening the first sample jar, a filtered instrument reading was made from the second soil sample jar. A granular-activated carbon (GAC) filter was attached to the instrument and a headspace organic vapor measurement was made from the second soil sample. The GAC filter adsorbs heavier organic vapors (such as petroleum hydrocarbons), but allows lighter, naturally occurring organic vapors (such as methane) to be detected by the FID. The filtered concentration was subtracted from the total vapor concentration to determine the corrected FID response.

2.3 SOIL SAMPLING PROGRAM

Three soil samples were collected from the 0-to-4-foot interval at the site for fixed-base laboratory analysis to confirm results of the headspace screening. Samples were collected from the borings with high, medium, and low FID readings. The soil samples were analyzed for VOCs by SW-846 Method 8260, PAHs by SW-846 Method 8310, TRPH by the Florida Petroleum Residual Organics (FL-PRO), TOX by SW-846 Method 9020B, and lead by SW-846 Method 6010B. The validated analytical report is included in Appendix D.

2.4 MONITORING WELL INSTALLATION PROGRAM

Following the DPT investigation, four shallow (12 to 20 feet bls) and one deep (35 feet bls) monitoring wells were installed at the site. These were used for groundwater sampling and collecting data to evaluate aquifer properties.

2.4.1 Monitoring Well Locations

Screening data obtained during the DPT investigation were evaluated to determine the optimum numbers and locations for the wells. Monitoring wells were located to provide adequate spatial coverage around the area of the release (Figure 2-2).

2.4.2 Shallow Monitoring Well Installation

The monitoring well borings were drilled with a truck-mounted drill rig and 4.25-inch inside diameter (ID) hollow-stem auger. Each well was constructed of 2-inch-ID, flush-threaded, schedule 40 polyvinyl chloride (PVC) riser, and 0.010-inch-slot well screen with a 6-inch point cap. Two shallow wells, located in the built up area where the USTs were located, were installed to approximately 20 feet bls with a 10-foot screen. The deeper well was installed to a depth of 35 feet bls with a 5-foot screen, and was also located in the built up area where the USTs were located. Two additional shallow wells were installed on the asphalt drive north of the retaining wall (approximately 6 feet below the grade of the top of the retaining wall) to a depth of 12 feet bls with a 10-foot screen. The annulus around each well was filled to approximately 1 foot above the top of the screen with U.S. Standard Sieve size 20/30 silica sand, followed by a 0.5 foot 30/65 fine sand seal. The remainder of the annulus was grouted to the surface. Each well was secured with a locking, watertight cap within a steel, 8-inch-diameter steel manhole. The manhole was set in a 24-inch-square concrete apron finished slightly above grade. A typical shallow well installation is illustrated on Figure 2-3. Monitoring well construction details are summarized in Table 2-1 and the monitoring well completion diagrams are provided in Appendix C.

2.4.3 Monitoring Well Development

Each monitoring well was developed by using a diaphragm or centrifugal pump. The wells were developed until the purge water became clear, normally when approximately 20 gallons had been removed. Development water and soil cuttings from the site were stored in labeled 55-gallon drums until analytical results confirmed concentrations were below GCTLs, at which time the investigation derived waste (IDW) was disposed by Navy personnel as non-hazardous waste.

2.5 GROUNDWATER SAMPLING PROGRAM

During site assessment activities, groundwater samples were collected from soil borings advanced during the DPT screening investigation and from monitoring wells. Groundwater samples collected during the DPT investigation were analyzed in an on-site mobile laboratory. Groundwater samples collected from the monitoring wells were submitted to an off-site laboratory to be analyzed for Gasoline Analytical Group (GAG) and Kerosene Analytical Group (KAG) constituents. Selected groundwater samples were analyzed for natural attenuation parameters at the off-site laboratory.

2.5.1 DPT Groundwater Screening

The groundwater screening investigation was conducted at HSTAIC to evaluate the extent of petroleum impact on site groundwater, as previously identified during removal activities in December 1998. Soil borings were installed in the built up area where the USTs were located, and through the asphalt drive north of the retaining wall, approximately 6 feet below the grade of the built up area where the USTs were located. During the preliminary assessment, 20 soil borings (AIC-SB-1 through -20) were advanced using DPT methods for collection of groundwater samples (Figure 2-1). The 12 borings located in the built up area were advanced approximately 10 feet into the water table to collect groundwater samples for mobile laboratory screening. The remaining eight borings north of the retaining wall were advanced approximately 4 to 5 feet into the water table to obtain the groundwater screening samples.

Groundwater samples were collected from small-diameter temporary wells installed at each soil boring location. A length of polyethylene (PE) tubing was inserted to the bottom of the temporary well screen. The PE tubing was connected to a peristaltic pump and several screen volumes were removed from the temporary well to decrease the amount of suspended sediment in the groundwater samples. After sufficient purging, groundwater samples were collected by directing the peristaltic pump discharge directly into bottles provided by the mobile laboratory.

Groundwater samples were delivered to the on-site mobile laboratory and analyzed for diesel range organics (DROs) using SW-846 Method 8015 and the PAHs using SW-846 Method 8100. The mobile laboratory data report is included in Appendix D.

2.5.2 Monitoring Well Sampling

Samples were collected from site monitoring wells to evaluate groundwater quality in the shallow surficial aquifer in the vicinity of the fuel leak. These samples were collected using the low-flow quiescent purging and sampling method. New Teflon® tubing was installed in each well for groundwater sampling. Approximately three to five well volumes were removed from each well using a peristaltic pump and Teflon® tubing. Temperature, pH, specific conductance, dissolved oxygen, and turbidity were monitored while the

wells were purged. The field measurements, well purge volumes, and depths to groundwater were recorded during well purging and at the time of sample collection. Groundwater sample log sheets are provided in Appendix C.

Groundwater samples were analyzed for GAG and KAG constituents, consisting of VOCs (SW-846 Method 8260), PAHs (SW-846 Method 8310), EDB by United States Environmental Protection Agency (EPA) Method 504.1, TRPH (FL-PRO), and lead (SW-846 Method 6010B). The groundwater samples were placed on ice and shipped to Katahdin Analytical Services in Westbrook, Maine, for analysis. Groundwater analytical validation reports are presented in Appendix D.

2.5.3 Natural Attenuation Parameter Sampling

During the groundwater sampling event, additional analyses were performed for groundwater collected from selected monitoring wells to evaluate the potential for naturally occurring biodegradation of petroleum constituents at the site. These samples were analyzed for methane, sulfate, and nitrate. Laboratory data for natural attenuation parameters is included in Appendix D.

2.6 AQUIFER CHARACTERIZATION PROGRAM

Data were collected during the site investigation to evaluate the movement of groundwater at the site. Groundwater elevations were determined from SWL measurements and a well top of casing (TOC) elevation survey.

2.6.1 Well TOC Survey

A reference point was marked on the top of each monitoring well casing on the north side. The elevations of the reference points were surveyed to the nearest 0.01-foot by the surveyor, Donaldson, Garrett, and Associates of Macon, Georgia. The field survey data is included in Appendix C.

2.6.2 SWL Measurements

Depth-to-groundwater measurements were made in site monitoring wells during July and September 2002. Measurements were made from the reference points marked on the tops of well casings, using an electronic water level indicator. SWL measurements were made to the nearest 0.01-foot. Groundwater elevations were calculated from the TOC survey elevations and the SWL measurements.

2.6.3 Tidal Study

At monitoring well AIC-MW-04, fluctuations in groundwater elevation were measured and correlated with tides to determine the extent of tidal influence on the surficial aquifer in the site vicinity. Prior to conducting the test, the monitoring well was opened and allowed to equilibrate to ambient conditions. Once the well

had stabilized, SWL was recorded and used to calculate the height of the water column in the well. A submersible data logger, the In-Situ MiniTroll, was then installed in the well and the water level was allowed to restabilize. The lead wire from the data logger was secured to the well to ensure that the data logger remained at a constant depth during the test. The data logger was connected to a computer to begin the test and start recording water levels in the well. It was programmed to record water levels every 15 minutes. The test was allowed to run for a period of 48 hours to ensure that any fluctuations would be recorded. The tidal study data and graphical representation are presented in Appendix E.

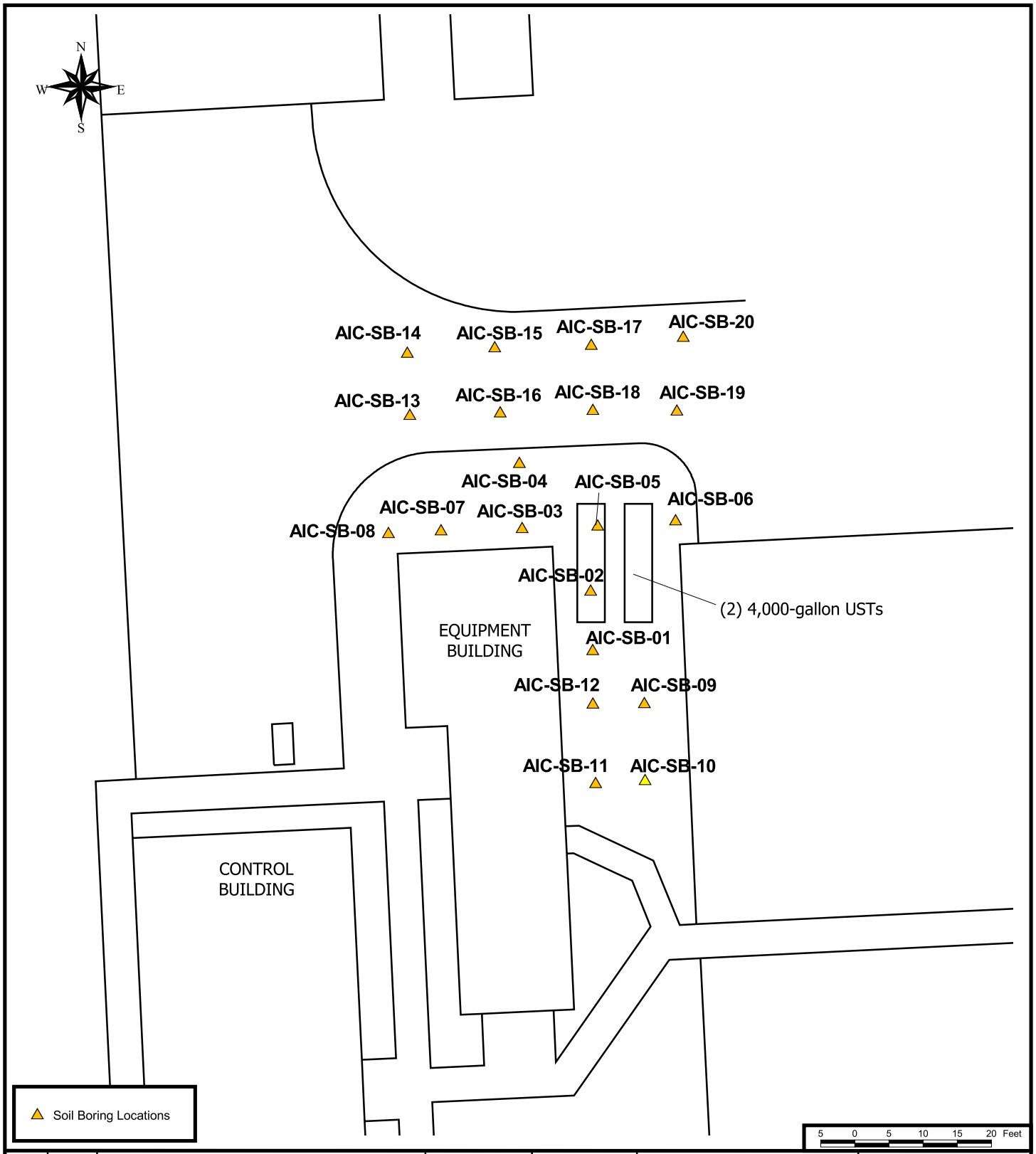
As hypothesized, water-level data recorded in monitoring well AIC-MW-04 during the tidal study indicate that the groundwater cycles semi-diurnally with the tides. During low tides, the SWLs recorded in the monitoring well were at the lowest elevation. Likewise, high tides produced the greatest water levels, indicating that the groundwater fluctuation corresponds with the tide cycle.

TABLE 2-1

**MONITORING WELL CONSTRUCTION DETAILS
HARRY S. TRUMAN ANIMAL IMPORT CENTER
SITE ASSESSMENT REPORT
NAVAL AIR STATION
KEY WEST, FLORIDA**

Well No.	Date Installed	Drilling Method	TOC Elevation	A/G Riser Length (if Applicable)	Total Well Depth (Feet)	Screened Interval (Feet bls)	Well Diameter (Inches)	Lithology of Screened Interval
AIC-MW-01	7/24/2002	HSA	12.11	NA	20	10-20	2	Oolitic limestone
AIC-MW-02	7/23/2002	HSA	11.97	NA	20	10-20	2	Oolitic limestone
AIC-MW-03	7/23/2002	HSA	6.42	NA	12	2-12	2	Oolitic limestone
AIW-MW-04	7/23/2002	HSA	5.93	NA	12	2-12	2	Oolitic limestone
AIC-MW-05D	7/23/2002	HSA	11.83	NA	35	30-35	2	Oolitic limestone

Note: TOC elevations surveyed by Donaldson, Garrett, and Associates in September 2002.
HSA Hollow-stem auger
TOC Top of casing
A/G Aboveground
NA Not Applicable
bls Below land surface



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SITE ASSESSMENT REPORT
FIGURE 2-1 SOIL BORING LOCATIONS
HARRY S. TRUMAN
ANIMAL IMPORT CENTER
NAVAL AIR STATION
KEY WEST, FLORIDA

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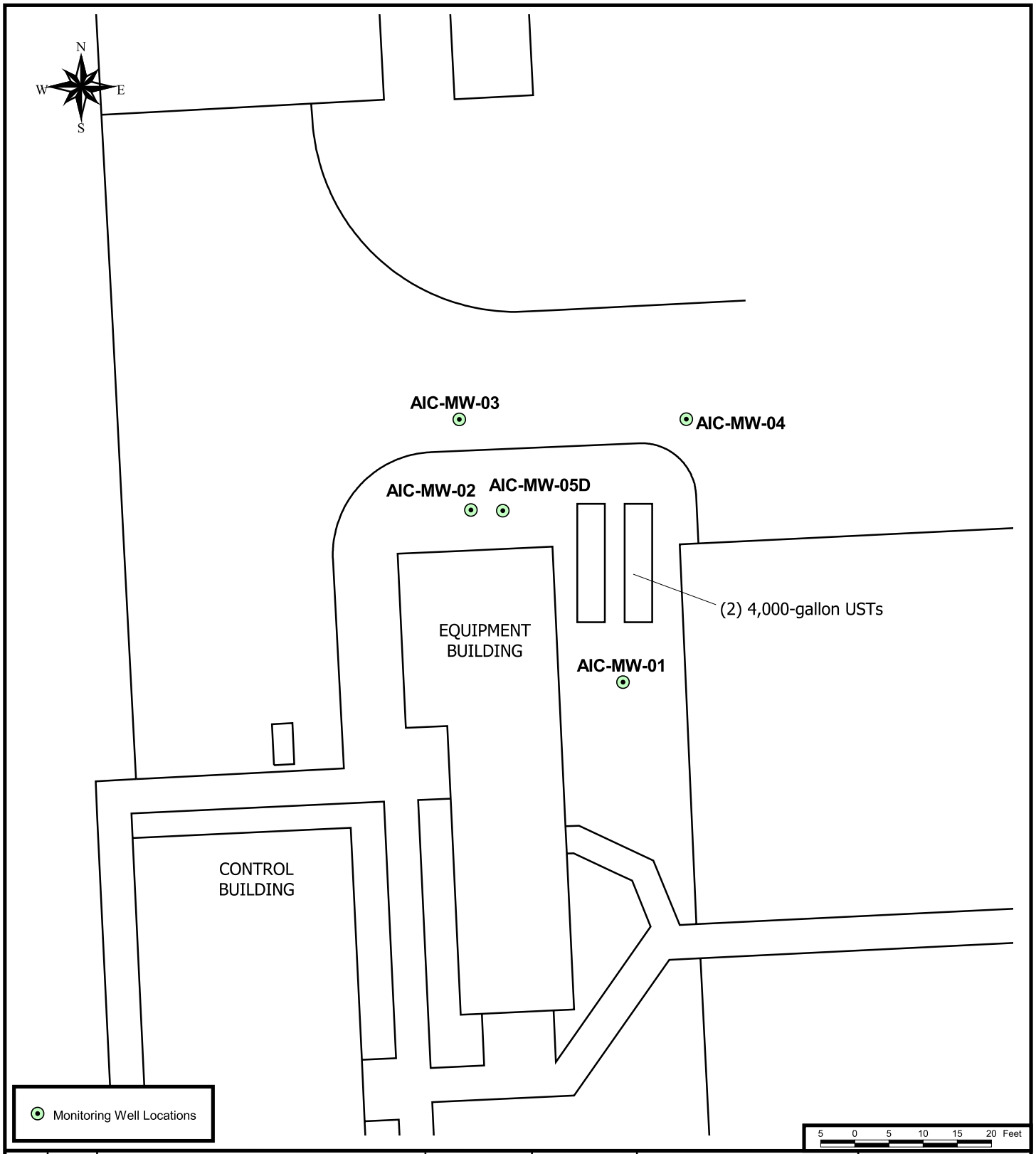
P:/GOVERNMENT/KEYWEST/EGIS/IR7_SAR.APR LAYOUT: SOIL BORINGS
DATE: 12/18/2002 BY: CM



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SITE ASSESSMENT REPORT
FIGURE 2-2
MONITORING WELL LOCATIONS
HARRY S. TRUMAN
ANIMAL IMPORT CENTER
NAVAL AIR STATION
KEY WEST, FLORIDA

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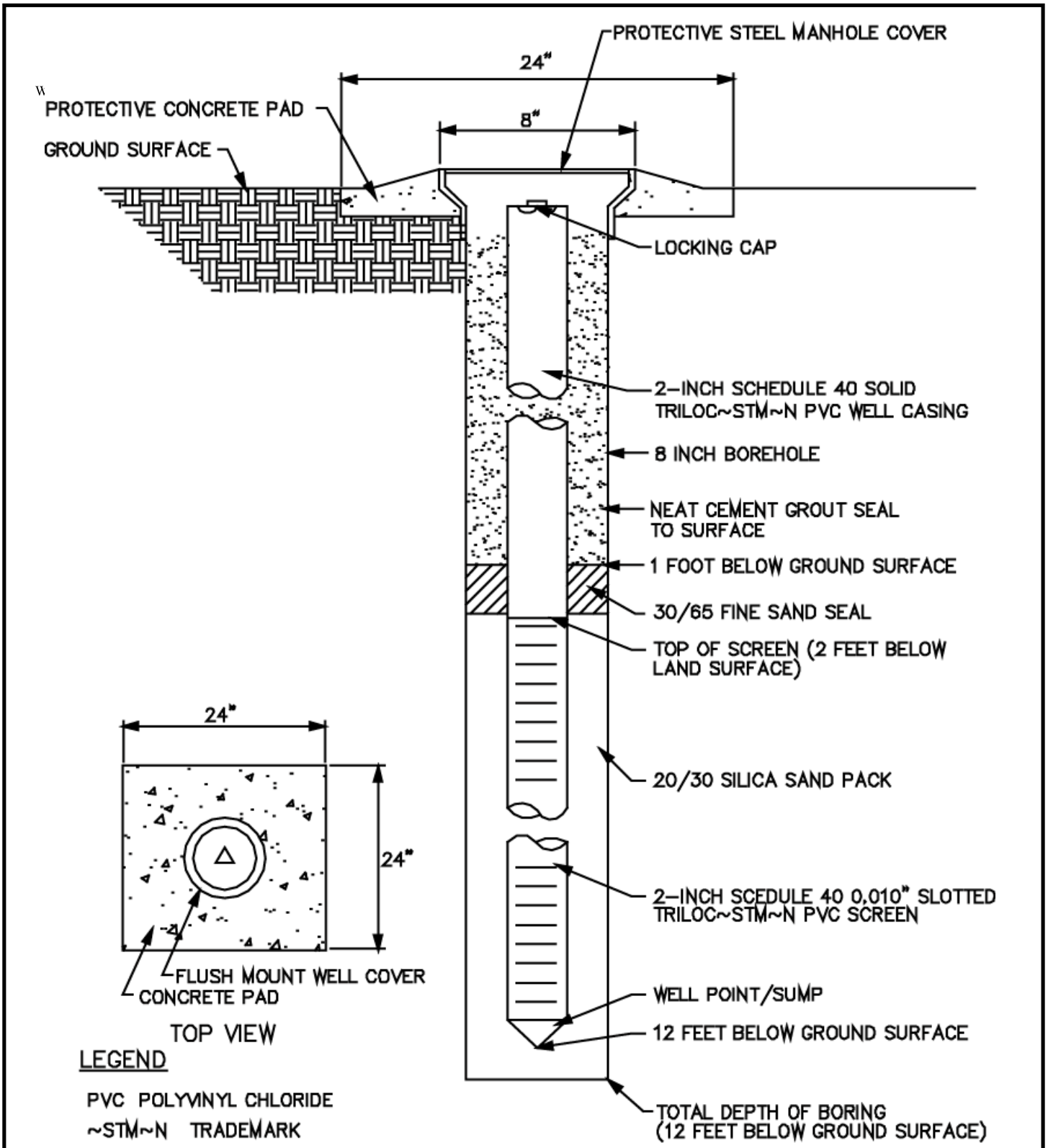
P:/GOVERNMENT/KEYWEST/EGIS/IR7_SAR.APR LAYOUT: MW LOCATIONS
DATE: 12/18/2002 BY: CM



NO.	DATE	REVISIONS	DRAWN BY CM	DATE 12/18/2002	SITE ASSESSMENT REPORT FIGURE 2-3 TYPICAL SHALLOW MONITORING WELL CONSTRUCTION HARRY S. TRUMAN ANIMAL IMPORT CENTER NAVAL AIR STATION KEY WEST, FLORIDA	CONTRACT NO. N4260	
			CHECKED BY EHM	DATE 12/18/2002		APPROVED BY CMB	DATE 12/18/2002
			COST/SCHED-AREA			APPROVED BY	DATE
			SCALE AS NOTED			DRAWING NO.	REV. 0

P:/GOVERNMENT/KEYWEST/EGIS/IR7_SAR.APR LAYOUT: TYPICAL SHALLOW MW CONSTRUCTION
DATE: 12/18/2002 BY: CM

3.0 GEOLOGY AND HYDROGEOLOGY

Data collected during the site assessment were used to evaluate geologic and hydrogeologic conditions at the site that may influence the fate and transport of hydrocarbons released to the environment. Lithology and stratigraphy were described for the shallow surficial aquifer at the site. Aquifer properties evaluated as part of the site assessment included depth to groundwater and groundwater elevation, groundwater flow direction and gradient, and tidal influence in the area.

The Lower Keys, which are within the southern geomorphic division of Florida, were formed during the Pleistocene Era. The Lower Keys are known as the "Oolitic Keys," a reference to the Oolitic Member of the Miami Limestone. The Oolitic Member consists of variably sandy, fossiliferous limestone composed primarily of ooids. The Oolitic Member is divided into two lithofacies: an ooid calcarenite and an oomoldic-recrystalline facies. The Key Largo Limestone underlies the Miami Limestone. The Key Largo Limestone is a light-gray to light-yellow coralline limestone comprised of coral heads encased in a matrix of calcarenite. In the Key West area, the Miami Limestone is approximately 27 feet thick and the Key Largo limestone is more than 270 feet thick [Brown & Root Environmental (B&RE), 1997].

The surficial aquifer system in the lower Keys is an unconfined, porous, highly permeable solution-riddled unit, as described above. Rainfall recharge seeps quickly into the ocean and saltwater intrusion is common. The water table ranges in depth from less than 1 foot to approximately 2.5 feet below mean sea level (msl) and fluctuates diurnally due to tidal effects. Water in the surficial aquifer is non-potable.

Fleming Key lies in the southeastern Coastal Plain physiographic province. Pleistocene marine reefs control the topography of the Coastal Plain in the Florida Keys [ABB Environmental Services, Inc. (ABB), 1995]. The topography of Fleming Key is generally flat. Average land surface elevations are less than 5 feet above msl. Drainage on the Key is toward the Atlantic Ocean and Gulf of Mexico, which completely surround the Key.

3.1 SITE STRATIGRAPHY

Interpretation of site lithology and stratigraphy was based on visual examination of soil cores collected from soil borings during the DPT investigation and drill cuttings observed during the monitoring well installation.

The site surface south of the retaining wall where the USTs were located is grass, underlain by light-brown-to-beige-to-white, sandy, oolitic limestone fill. On the asphalt driveway north of the retaining wall, the ground surface is approximately 6 feet below the grade of the retaining wall, and the oolitic limestone fill is overlain by asphalt. The fill material is course-grained, poorly sorted, moderately consolidated with pebbles, cobbles, shell fragments, and construction debris (metal, wood, and concrete). This lithology extends to at

least 35 feet bls, which was the maximum depth drilled during the investigation. Due to the homogeneity of the subsurface, no lithologic cross-section was constructed. Soil boring logs are included in Appendix C.

3.2 SITE HYDROGEOLOGY

Hydrogeologic data were collected during the site assessment to evaluate movement of groundwater in the shallow surficial aquifer at the site. Depth to groundwater and groundwater elevation were used to determine the groundwater flow direction and water table gradient at the site. Hydraulic conductivity and transmissivity for the shallow surficial aquifer were obtained from data of slug tests conducted during a previous investigation on Boca Chica Key. Groundwater flow velocity at the site was estimated from the hydraulic conductivity and gradient data.

3.2.1 SWL and Groundwater Elevations

SWL data were collected from site monitoring wells during two gauging events in July and September 2002. Groundwater elevation measurements in shallow monitoring wells ranged from 1.26 to 1.35 feet on July 24, 2002 and from 1.62 to 1.96 feet on September 17, 2002 (Table 3-1).

The SWL data and the elevations from the well TOC survey were used to determine a groundwater elevation at each well for the two gauging events (Table 3-1).

3.2.2 Groundwater Flow Direction

To evaluate the direction of groundwater flow at the site, the groundwater elevations were plotted on site maps for each gauging event (Figures 3-1 and 3-2). Groundwater elevation isocontours were calculated from the plotted data. Groundwater flow direction is predicted to be perpendicular to the elevation isocontours. Interpretation of data from the July 2002 gauging event indicated a radial flow ranging from due north to southeast, while the September 2002 event indicated a flow to the northeast. This inconsistent pattern of groundwater movement is indicative of tidal influence on the surficial aquifer.

3.2.3 Water Table Gradient

The average horizontal groundwater gradient across the site was calculated for each gauging event from the groundwater elevations measured in shallow monitoring wells and the estimated groundwater flow direction.

The groundwater flow gradient was determined by using the following equation:

$$i = \frac{h_1 - h_2}{d}$$

Where:

- i = the hydraulic gradient
- h_1 = the water elevation at point 1, the highest value
- h_2 = the water elevation at point 2, the lowest value
- d = the horizontal distance between point 1 and point 2, parallel to the direction of groundwater flow

The highest and lowest groundwater elevation values measured in shallow monitoring wells during each gauging event were used to determine the difference in groundwater elevation across the site. The horizontal distance between the high and low groundwater elevation points was measured parallel to the estimated groundwater flow direction.

On July 24, 2002, the groundwater elevation in AIC-MW-02, 1.35 feet, was the highest value and the groundwater elevation in AIC-MW-04, 1.30 feet, was the lowest value. The horizontal distance parallel to groundwater flow was 34.22 feet. These data indicate an average hydraulic gradient of 0.0015 feet/foot.

On September 17, 2002, the groundwater elevation in AIC-MW-01, 1.76 feet, was the highest value and the groundwater elevation in AIC-MW-04, 1.62 feet, was the lowest value. The horizontal distance parallel to groundwater flow was 39.6 feet. These data indicate an average hydraulic gradient of 0.0035 feet/foot.

The arithmetic mean of the two calculated gradient values is 0.0025 feet/foot.

3.2.4 Hydraulic Conductivity

Hydraulic conductivity values for the site were obtained from slug tests conducted at the Jet Engine Test Cell site [Solid Waste Management Unit (SWMU) 9] on Boca Chica Key (ABB, 1994). The results from this location were considered suitable for use at the HSTAIC site because the lithology and well construction details were similar. The hydraulic conductivity (K) in the test was calculated using the Bouwer and Rice (1976, 1989) methods for partially penetrating wells screened in unconfined aquifers. The average K value (calculated from the data collected from two wells) was estimated to be 0.72 feet per day. The slug test data is presented in Appendix F.

3.2.5 Groundwater Velocity

Potential movement of groundwater at the site may be described in terms of transportation by natural flow in the saturated zone, while assuming that groundwater flow follows Darcy's Law. Darcy's Law may be expressed as:

$$V = \frac{(K \times i)}{n}$$

Where:

V = average seepage velocity
K = hydraulic conductivity
n = effective porosity
i = average hydraulic gradient

Data from soil borings advanced during the DPT investigation indicate that oolitic limestone is the typical lithology at the site. Review of standard references suggests that a representative effective porosity for weathered oolitic limestone is approximately 30 percent (Davis and Deweist, 1966).

Using a hydraulic conductivity of 0.72 feet per day, the mean hydraulic gradient of 0.0025 feet/foot, an inferred effective porosity value of 0.30, and Darcy's Law, the groundwater seepage velocity across the site was calculated at 0.006 feet per day.

3.2.6 Potable Water Supply Well Survey

No freshwater public or registered domestic wells are in use on NAS Key West (ABB, 1995). Some residences in Key West have wells that withdraw water from the surficial aquifer for non-potable uses. The Florida Keys Aqueduct Authority (FKAA) operates and maintains the Florida Keys Aqueduct, which supplies potable water to all of the Keys. This water is drawn from wells near Florida City in southeastern Dade County. It is pumped 130 miles through a water main that parallels U.S. Highway 1 and terminates in Key West. The Monroe County Health Department recognizes the public water supply as the only potable water source available in Key West.

Alternative sources of potable water and non-potable water used in the Keys include private cisterns, private wells utilizing reverse osmosis, home desalination systems, and bottled water. The number of people who may be using water from these alternative sources is unknown. The best estimate of the number of people using local groundwater for non-potable domestic purposes is less than 500.

3.2.7 Tidal Influence

The data collected during the tidal survey conducted on monitoring well AIC-MW-04 revealed a fluctuation of approximately 0.45 feet in water level during the day cycle, while the night cycle was 0.26 feet. This data suggests that there is a tidal influence on the surficial aquifer at the site. The data from the tidal survey is provided in Appendix E.

3.3 SURFACE WATER

There are no naturally occurring surface water bodies in the immediate vicinity of the site. The Gulf of Mexico is located approximately 300 feet to the east, and the Man of War Harbor is located approximately 315 feet to the west.

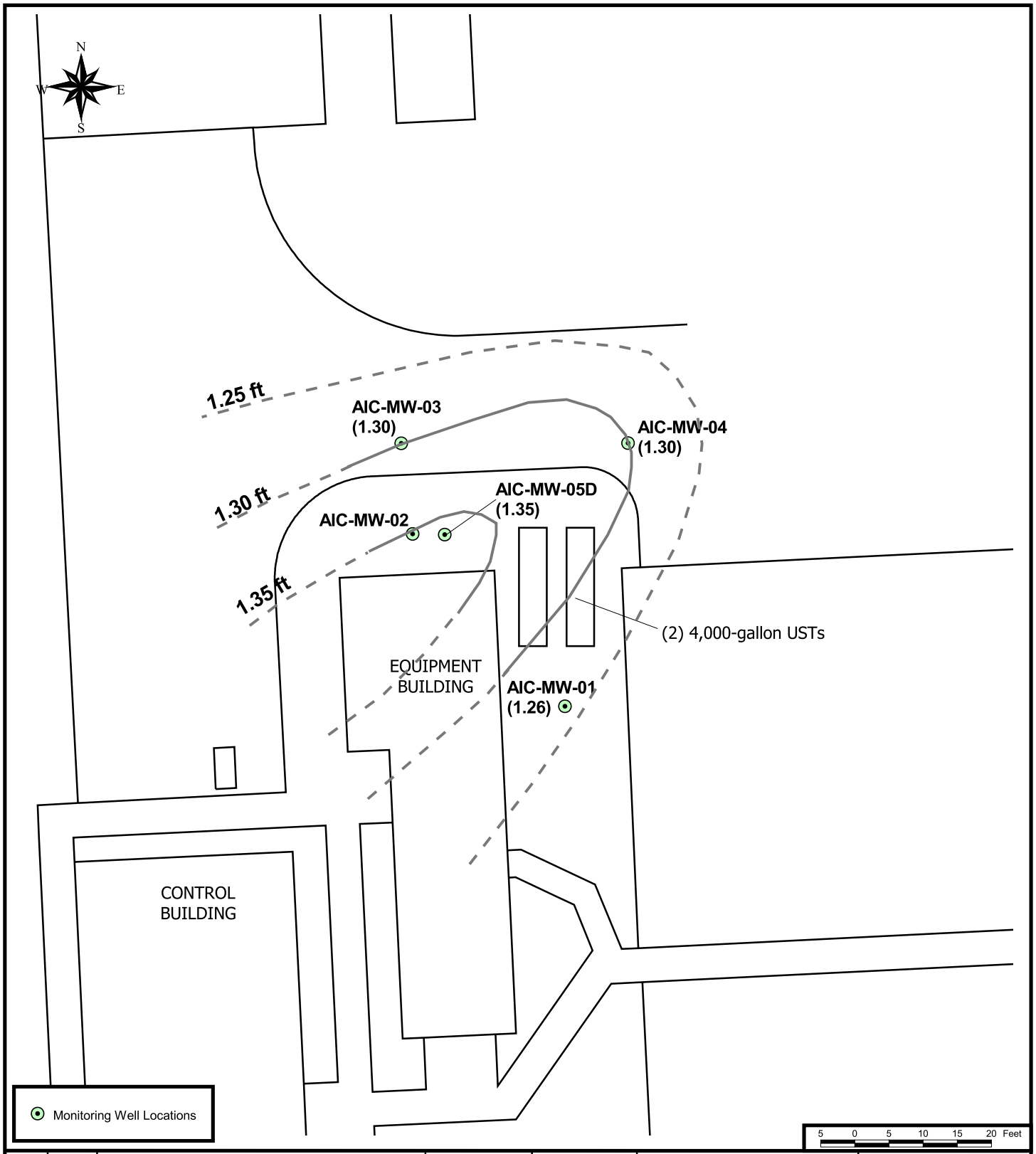
TABLE 3-1

GROUNDWATER ELEVATION SUMMARY
HARRY S. TRUMAN ANIMAL IMPORT CENTER
SITE ASSESSMENT REPORT
NAVAL AIR STATION
KEY WEST, FLORIDA

Well No.	**AIC-MW-01**			**AIC-MW-02**			**AIC-MW-03**			**AIC-MW-04**			**AIC-MW-05D**		
Well Diameter	2 inch			2 inch			2 inch			2 inch			2 inch		
Well Depth	20.00			20.00			12.00			12.00			35.00		
Screened Interval	10.00-20.00			10.00-20.00			2.00-12.00			2.00-12.00			30.00-35.00		
TOC Elevation	12.11			11.97			6.42			5.93			11.83		
Date	**ELEV**	**DTW**	**FP**	**ELEV**	**DTW**	**FP**	**ELEV**	**DTW**	**FP**	**ELEV**	**DTW**	**FP**	**ELEV**	**DTW**	**FP**
7/24/2002	1.26	10.85	ND	1.35	10.62	ND	1.30	5.12	ND	1.30	4.63	ND	1.35	10.48	ND
9/17/2002	1.76	10.35	ND	1.74	10.23	ND	1.68	4.74	ND	1.62	4.31	ND	1.96	9.87	ND

NOTES: Measurements in feet
TOC elevations surveyed 9/16/02 (NVGD 29)
All reading were obtained under high tide conditions.

TOC Top of casing
ELEV Elevation
DTW Depth to water
FP Free product thickness
ND Not detected



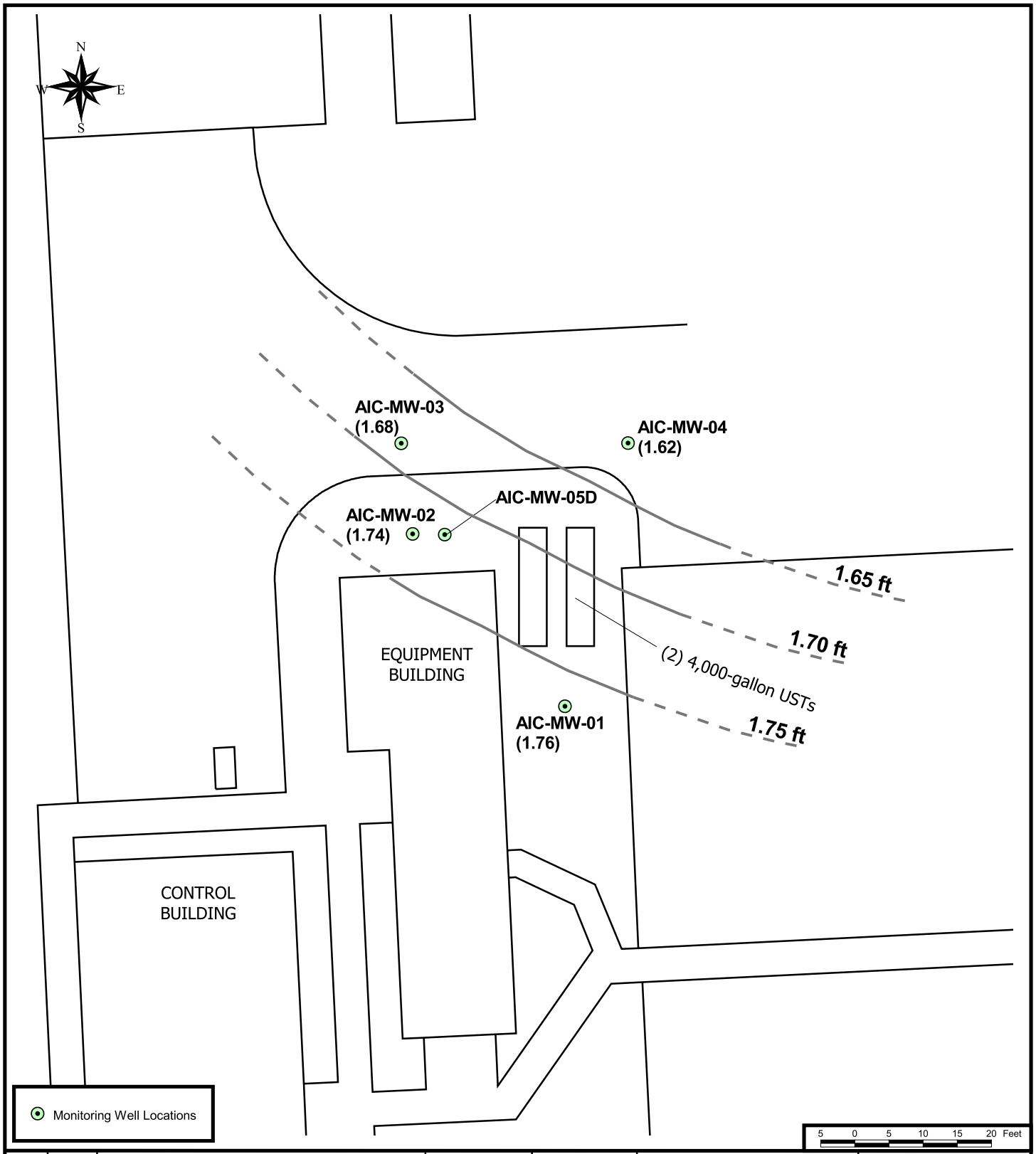
NO.	DATE	REVISIONS

DRAWN BY CM	DATE 12/18/2002
CHECKED BY EHM	DATE 12/18/2002
COST/SCHED-AREA	
SCALE AS NOTED	

SITE ASSESSMENT REPORT
FIGURE 3-1 GROUNDWATER ELEVATION
HIGH TIDE CONTOUR MAP, JULY 2002
HARRY S. TRUMAN
ANIMAL IMPORT CENTER
NAVAL AIR STATION
KEY WEST, FLORIDA

CONTRACT NO. N4260	
APPROVED BY CMB	DATE 12/18/2002
APPROVED BY	DATE
DRAWING NO.	REV. 0

P:/GOVERNMENT/KEYWEST/EGIS/IR7_SAR.APR LAYOUT: GW ELEVATION JULY 2002
DATE: 12/18/2002 BY: CM



NO.	DATE	REVISIONS

DRAWN BY CM	DATE 12/18/2002
CHECKED BY EHM	DATE 12/18/2002
COST/SCHED-AREA	
SCALE AS NOTED	

SITE ASSESSMENT REPORT
FIGURE 3-2 GROUNDWATER ELEVATION
HIGH TIDE CONTOUR MAP, SEPT. 2002
HARRY S. TRUMAN
ANIMAL IMPORT CENTER
NAVAL AIR STATION
KEY WEST, FLORIDA

CONTRACT NO. N4260	
APPROVED BY CMB	DATE 12/18/2002
APPROVED BY	DATE
DRAWING NO.	REV. 0

P:/GOVERNMENT/KEYWEST/EGIS/IR7_SAR.APR LAYOUT: GW ELEVATION SEPT 2002
DATE: 12/18/2002 BY: CM

4.0 SITE ASSESSMENT RESULTS

Soil samples were collected at HSTAIC for headspace screening and/or laboratory analysis. The headspace screening results collected from unsaturated samples were evaluated following the appropriate Section 62-770.200, FAC guidelines. Groundwater samples were collected at HSTAIC during the groundwater assessment. The results of groundwater analyses were compared to the FDEP GCTLs, listed in Chapter 62-777, FAC Table I.

Natural attenuation parameters were measured from selected wells during each groundwater sampling event.

4.1 SOIL ASSESSMENT RESULTS

4.1.1 DPT Headspace Screening

A DPT investigation was conducted to estimate the extent of petroleum-impacted soil at the site. Vadose zone soils were evaluated for headspace screening. A summary of soil organic vapor analyzer (OVA) screening results is presented in Table 4-1. Soil boring locations and vapor readings are depicted on Figure 4-1.

Soils with a significant headspace screening response (10 ppm) were encountered in one boring (AIC-SB-10) advanced during the DPT investigation. All other screening responses were below 10 ppm (Figure 4-1).

4.1.2 Laboratory Soil Sample Analysis

During the DPT investigation, three soil samples were collected for analysis by a fixed-base laboratory. The samples were collected from AIC-SB-10, AIC-SB-15, and AIC-SB-20 (Figure 4-1) and were analyzed for GAG and KAG constituents. Laboratory analytical reports can be found in Appendix D.

TRPH was reported in soil sample AIC-SB-10 at a concentration of 130 mg/kg but was not detected in AIC-SB-15 and AIC-SB-20. The PAH compounds benzo(a)anthracene, benzo(b)fluoranthene, fluoranthene, naphthalene, phenanthrene, and pyrene were detected in the soil samples. Lead was detected in all soil samples. No VOCs were detected in the three soil samples collected for laboratory analysis. No chemicals were detected above their respective SCTLs. A summary of the soil analytical results is presented in Table 4-2.

4.2 GROUNDWATER ASSESSMENT RESULTS

4.2.1 DPT Assessment

Groundwater samples were collected from each soil boring advanced during the DPT investigation. Results of the investigation are depicted on Figure 4-3. Groundwater samples were collected and analyzed for PAH and DRO by the mobile analytical laboratory (Table 4-3). DROs were detected in groundwater samples AIC-GS-03 and AIC-GS-16 at concentrations of 2.7 and 1.0 milligrams per liter (mg/L), respectively. PAH compounds and DRO were not detected in any of the other samples collected.

4.2.2 Monitoring Well Sampling

Groundwater samples were collected from the five on-site monitoring wells (AIC-MW-01, -02, -03, -04, and -05D) in July and September 2002 and analyzed at an off-site laboratory for VOCs, PAHs, EDB, TRPH, and lead. One monitoring well, AIC-MW-05D, was sampled again in May 2003 due to VOC constitutents detected above the GCTL in July 2002. Figure 4-4 shows the five monitoring well locations. The validated analytical reports can be found in Appendix D.

During the July 2002 sampling event, the VOC compounds bromodichloromethane, chlorodibromomethane, chloromethane, ethylbenzene, and methyl tertiary-butyl ether (MTBE) were detected in HSTAIC monitoring wells. Bromodichloromethane was detected at a concentration of 0.7 μg/L, compared to the GCTL of 0.6 μg/L. Chlorodibromomethane exceeded the GCTL of 0.4 μg/L with a concentration of 0.8 μg/L. Both exceedances occurred in the sample from monitoring well AIC-MW-05D. PAHs were detected in all HSTAIC monitoring wells but AIC-MW-04. EDB and lead were not detected in any HSTAIC monitoring wells during the July 2002 sampling event. TRPH was detected in all HSTAIC monitoring wells during the July 2002 sampling event, but concentrations were below the GCTL. Detections are reported in Table 4-4.

During the September 2002 sampling event, MTBE was the only VOC detected in HSTAIC groundwater. It was detected at a concentration of 0.9 micrograms per liter (μg/L) in monitoring well AIC-MW-03. Several PAHs were again detected in groundwater at HSTAIC, but no PAHs were detected in monitoring well AIC-MW-04. Lead and EDB were not detected in groundwater during the September event. As in July, TRPH was detected in all HSTAIC monitoring wells, but in all cases was below the GCTL of 5,000 μg/L. Detected results are reported in Table 4-5.

An additional sampling event was conducted in May 2003 at FDEP's request due to the exceedances of bromodichloromethane and chlorodibromomethane at AIC-MW-05D in July 2002. A sample was collected from AIC-MW-05D and analyzed for the two VOC constituents by Accura Analytical Laboratory in Norcross, Georgia. Neither constituent was detected in groundwater collected from monitoring well AIC-MW-05D in

May 2003. The validated sample results can be found in Appendix D. Figure 4-4 presents all exceedances of GCTLs during the three groundwater sampling events conducted at the HSTAIC.

4.3 NATURAL ATTENUATION SAMPLING

Samples collected from AIC-MW-01, -03, and -04 were analyzed for natural attenuation parameters (sulfate, nitrate, and methane) during the July 2002 event. During the September 2002 event, samples collected from AIC-MW-03 and -05D were analyzed for the same parameters. Results are reported in Table 4-5. Nitrate was detected in one monitoring well during the September sampling event at a concentration of 0.009 mg/L. Sulfate and methane concentrations were higher in the September event, increasing from 270 to 300 mg/L, and 1,100 to 3,200 μg/L, respectively, in monitoring well AIC-MW-03.

TABLE 4-1

**SOIL HEADSPACE ANALYTICAL RESULTS
HARRY S. TRUMAN ANIMAL IMPORT CENTER
SITE ASSESSMENT REPORT
NAVAL AIR STATION
KEY WEST, FLORIDA**

SAMPLE				OVA SCREENING RESULTS			
LOCATION NO.	DATE COLLECTED	DEPTH TO WATER (feet bls)	SAMPLE INTERVAL (feet bls)	TOTAL READING (ppm)	CARBON FILTERED (ppm)	NET READING (ppm)	COMMENTS
SB-1	7/16/2002	10	All	0	NS	0	
SB-2	7/16/2002	10	4-6	8	0	8	metal debris
SB-3	7/16/2002	10	All	0	NS	0	
SB-4	7/16/2002	12	10-12	2	0	2	
SB-5	7/16/2002	10	All	0	NS	0	
SB-6	7/16/2002	10	All	0	NS	0	
SB-7	7/16/2002	10	All	0	NS	0	
SB-8	7/16/2002	10	All	0	NS	0	metal debris, slight petroleum odor
SB-9	7/16/2002	10	6-8	5	0	5	
SB-10	7/16/2002	10	6-8	10	0	10	
SB-11	7/16/2002	10	All	0	NS	0	
SB-12	7/16/2002	12	10-12	2	0	2	
SB-13	7/16/2002	4-5	All	0	NS	0	
SB-14	7/16/2002	4-5	All	0	NS	0	
SB-15	7/16/2002	4-5	2-4	3	0	3	
SB-16	7/16/2002	4-5	2-4	8	0	8	
SB-17	7/16/2002	4-5	All	0	NS	0	
SB-18	7/16/2002	4-5	All	0	NS	0	
SB-19	7/16/2002	4-5	All	0	NS	0	
SB-20	7/16/2002	4-5	All	0	NS	0	

Notes:
bls = Below land surface
ppm = Parts per million
NS = Not sampled

TABLE 4-2

**SOIL ANALYTICAL RESULTS, JULY 2002
HARRY S. TRUMAN ANIMAL IMPORT CENTER
SITE ASSESSMENT REPORT
NAVAL AIR STATION
KEY WEST, FLORIDA**

DEPTH (ft)	LOCATION	PARAMETER	RESULT (mg/kg)	QUAL.[a]	SCTL[b] (mg/kg)
Lead					
6-8	AIC-SB-10	Lead	157		400
2-4	AIC-SB-15	Lead	36.8		
0-4	AIC-SB-20	Lead	76.9		
Total Organic Halides					
6-8	AIC-SB-10	Total Organic Halides	270		NA
2-4	AIC-SB-15	Total Organic Halides	220		
0-4	AIC-SB-20	Total Organic Halides	39		
Polynuclear Aromatic Hydrocarbons					
6-8	AIC-SB-10	Benzo(a)anthracene	0.033	J	1.4
2-4	AIC-SB-15	Benzo(a)anthracene	0.007	J	
0-4	AIC-SB-20	Benzo(a)anthracene	0.01	J	
6-8	AIC-SB-10	Benzo(b)fluoranthene	0.036	J	1.4
6-8	AIC-SB-10	Fluoranthene	0.048	J	2,900
0-4	AIC-SB-20	Fluoranthene	0.013	J	
6-8	AIC-SB-10	Naphthalene	0.024	J	40
6-8	AIC-SB-10	Phenanthrene	0.042	J	2,000
6-8	AIC-SB-10	Pyrene	0.039	J	2,200
2-4	AIC-SB-15	Pyrene	0.006	J	
0-4	AIC-SB-20	Pyrene	0.012	J	
Total Recoverable Petroleum Hydrocarbons					
6-8	AIC-SB-10	Total Petroleum Hydrocarbons	130		340

(a) Qualifier (Qual.)Codes:
J – The estimated quantity below the practical quantitation limit and above the method detection limit.

(b) Soil Cleanup Target Level (SCTL), Residential Criteria for direct exposure as listed in FAC 62-777, Table II.

TABLE 4-3

MOBILE LABORATORY GROUNDWATER ANALYTICAL RESULTS, JULY 2002
HARRY S. TRUMAN ANIMAL IMPORT CENTER
SITE ASSESSMENT REPORT
NAVAL AIR FACILITY
KEY WEST, FLORIDA

Parameter	AIC- GS -03	AIC- GS -07	AIC- GS -08	AIC- GS - 09	AIC- GS -10	AIC- GS -11	AIC- GS -12	AIC- GS -13	AIC- GS -14	AIC- GS -15	AIC- GS -16	AIC- GS -17	AIC- GS -18	AIC- GS -19	AIC- GS -20
Diesel	**2.7**	<2	<2	<2	<2	<2	<2	<2	<2	<2	**1.0 L**	<2	<2	<2	<2
Naphthalene	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthalene	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Anthracene	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Pyrene	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b)fluoranthene	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(k)fluoranthene	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)pyrene	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Indeno(1,2,3-cd)pyrene	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(ghi)perylene	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1

Notes:
Units are mg/L.
L Sample result less than Reporting Limit but greater than MDL
<=Less than.

TABLE 4-4

**LABORATORY GROUNDWATER ANALYTICAL RESULTS, JULY 2002
HARRY S. TRUMAN ANIMAL IMPORT CENTER
SITE ASSESSMENT REPORT
NAVAL AIR STATION
KEY WEST, FLORIDA
PAGE 1 OF 2**

LOCATION	PARAMETER	RESULT[a] (µg/L)	QUAL[b]	GCTL[c] (µg/L)
Volatile Organic Compounds				
AIC-MW-05D-0702	Bromodichloromethane	0.7	J	0.6
AIC-MW-05D-0702	Chlorodibromomethane	0.8	J	0.4
AIC-MW-02-0702-AVG	Chloromethane	0.75[1]	J	2.7
AIC-MW-02-0702-AVG	Ethylbenzene	0.6[1]	J	30
AIC-MW-03-0702	Ethylbenzene	3		
AIC-MW-02-0702-AVG	Methyl Tert-Butyl Ether	0.75	J	50
AIC-MW-03-0702	Methyl Tert-Butyl Ether	0.3	J	
Polynuclear Aromatic Hydrocarbons				
AIC-MW-02-0702	1-Methylnaphthalene	2.5	J	20
AIC-MW-03-0702	1-Methylnaphthalene	2	J	
AIC-MW-05D-0702	1-Methylnaphthalene	1		
AIC-MW-02-0702-AVG	2-Methylnaphthalene	2.5		20
AIC-MW-03-0702	2-Methylnaphthalene	2		
AIC-MW-05D-0702	2-Methylnaphthalene	1		
AIC-MW-01-0702	Acenaphthene	0.2	J	20
AIC-MW-02-0702-AVG	Acenaphthene	1.5	J	
AIC-MW-03-0702	Acenaphthene	1		
AIC-MW-05D-0702	Acenaphthene	0.3		
AIC-MW-02-0702-AVG	Acenaphthylene	0.35		210
AIC-MW-03-0702	Acenaphthylene	0.4		
AIC-MW-05D-0702	Acenaphthylene	0.2	J	
AIC-MW-01-0702	Fluoranthene	0.1	J	40
AIC-MW-02-0702-AVG	Fluoranthene	0.1	J	
AIC-MW-01-0702	Fluorene	0.05	J	280
AIC-MW-02-0702-AVG	Fluorene	1.5	J	
AIC-MW-03-0702	Fluorene	1		
AIC-MW-05D-0702	Fluorene	0.4		
AIC-MW-02-0702-AVG	Naphthalene	0.85		20
AIC-MW-03-0702	Naphthalene	1		
AIC-MW-05D-0702	Naphthalene	0.2	J	
AIC-MW-02-0702-AVG	Phenanthrene	0.9		210
AIC-MW-03-0702	Phenanthrene	1		
AIC-MW-05D-0702	Phenanthrene	0.5		
AIC-MW-01-0702	Pyrene	0.1	J	210
AIC-MW-02-0702-AVG	Pyrene	0.1	J	
AIC-MW-03-0702	Pyrene	0.1	J	

TABLE 4-4

**LABORATORY GROUNDWATER ANALYTICAL RESULTS, JULY 2002
HARRY S. TRUMAN ANIMAL IMPORT CENTER
SITE ASSESSMENT REPORT
NAVAL AIR STATION
KEY WEST, FLORIDA
PAGE 2 OF 2**

LOCATION	PARAMETER	RESULT[(a)] (µg/L)	QUAL[(b)]	GCTL[(c)] (µg/L)
Total Recoverable Petroleum Hydrocarbons				
AIC-MW-01-0702	Total Petroleum Hydrocarbons	730		5,000
AIC-MW-02-0702-AVG	Total Petroleum Hydrocarbons	1,450		
AIC-MW-03-0702	Total Petroleum Hydrocarbons	2,000		
AIC-MW-04-0702	Total Petroleum Hydrocarbons	250	J	
AIC-MW-05D-0702	Total Petroleum Hydrocarbons	250	J	

The notation "AVG" indicates that duplicate samples were collected and the results were averaged.

(a) Result:
  (1) The parameter was detected in only one of two duplicate samples. For averaging purposes, one-half the detection limit was averaged with the detected result.

(b) Qualifier (Qual.) Codes:
  J – The estimated quantity was below the practical quantitation limit and above the method detection limit.

(c) Groundwater Cleanup Target Level (GCTL) as defined in FAC 62-777, Table I.

TABLE 4-5

**LABORATORY GROUNDWATER ANALYTICAL RESULTS, SEPTEMBER 2002
HARRY S. TRUMAN ANIMAL IMPORT CENTER
SITE ASSESSMENT REPORT
NAVAL AIR STATION
KEY WEST, FLORIDA**

LOCATION	PARAMETER	RESULT (µg/L)	QUAL.[a]	GCTL[b] (µg/L)
Volatile Organic Compounds				
AIC-MW-03-0902	Methyl Tert-Butyl Ether	0.9	J	50
Polynuclear Aromatic Hydrocarbons				
AIC-MW-01-0902	1-Methylnaphthalene	0.5		20
AIC-MW-02-0902-AVG	1-Methylnaphthalene	1.5		
AIC-MW-03-0902	1-Methylnaphthalene	0.1	J	
AIC-MW-05D-0902	1-Methylnaphthalene	0.9		
AIC-MW-02-0902-AVG	2-Methylnaphthalene	0.6		20
AIC-MW-03-0902	2-Methylnaphthalene	0.1	J	
AIC-MW-05D-0902	2-Methylnaphthalene	0.8		
AIC-MW-01-0902	Acenaphthene	0.1	J	20
AIC-MW-02-0902-AVG	Acenaphthene	0.9		
AIC-MW-03-0902	Acenaphthene	0.3		
AIC-MW-05D-0902	Acenaphthene	0.2	J	
AIC-MW-03-0902	Acenaphthylene	0.07	J	210
AIC-MW-02-0902-AVG	Fluorene	0.7		280
AIC-MW-05D-0902	Fluorene	0.2	J	
AIC-MW-02-0902-AVG	Naphthalene	0.3		20
AIC-MW-03-0902	Naphthalene	0.3		
AIC-MW-05D-0902	Naphthalene	0.1	J	
AIC-MW-02-0902-AVG	Phenanthrene	0.3		210
AIC-MW-03-0902	Phenanthrene	0.2	J	
AIC-MW-05D-0902	Phenanthrene	0.1	J	
AIC-MW-02-0902-AVG	Pyrene	0.15	J	210
Total Recoverable Petroleum Hydrocarbons				
AIC-MW-01-0902	Total Petroleum Hydrocarbons	240	J	5,000
AIC-MW-02-0902-AVG	Total Petroleum Hydrocarbons	660		
AIC-MW-03-0902	Total Petroleum Hydrocarbons	820		
AIC-MW-04-0902	Total Petroleum Hydrocarbons	200	J	
AIC-MW-05D-0902	Total Petroleum Hydrocarbons	240	J	

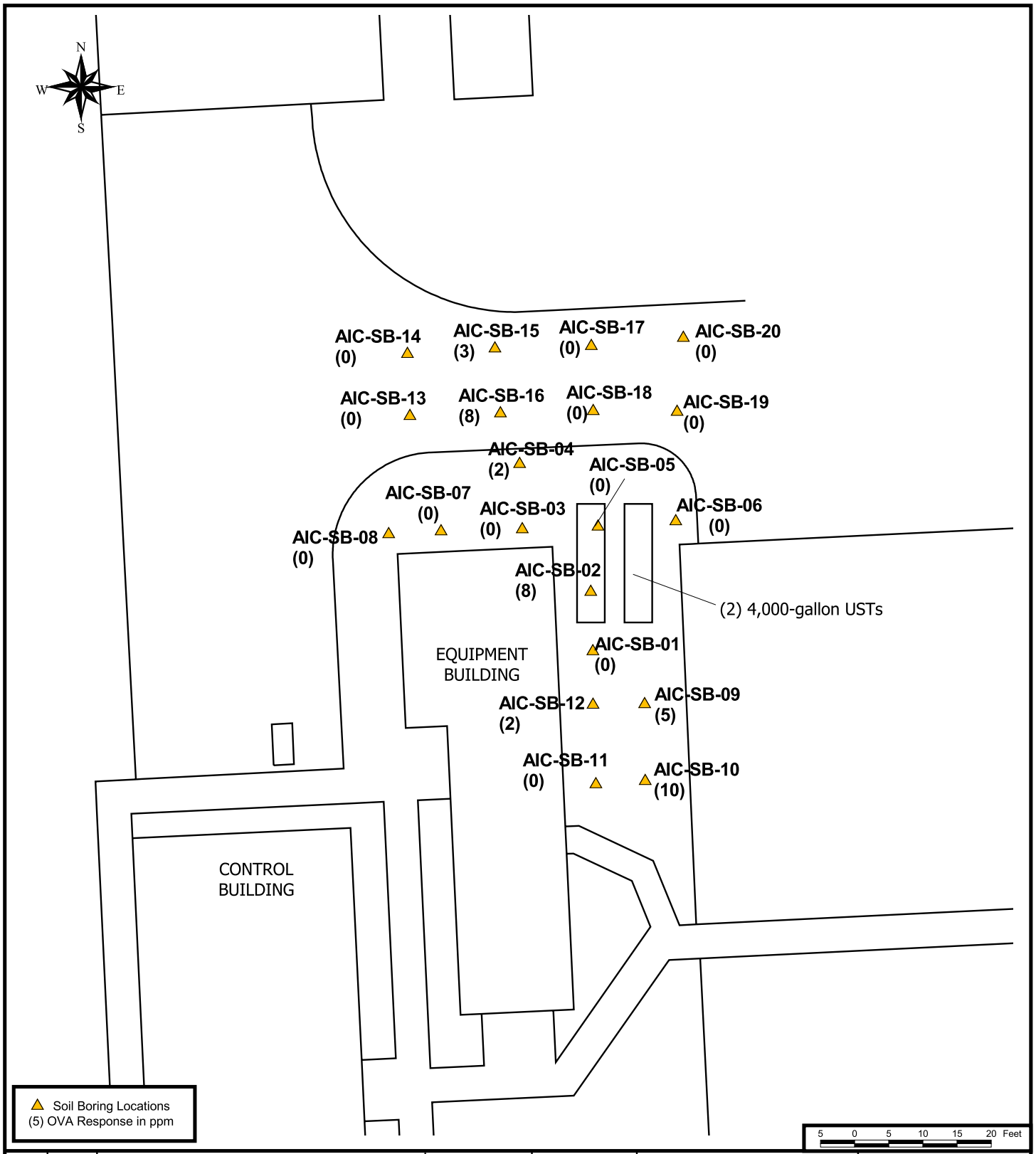
The notation "AVG" indicates that duplicate samples were collected and the results were averaged.
(a) Qualifier (Qual.) Codes:
J – The estimated quantity was below the practical quantitation limit and above the method detection limit.
(b) Groundwater Cleanup Target Level (GCTL) as defined in FAC 62-777, Table I.

TABLE 4-6

**NATURAL ATTENUATION PARAMETERS SUMMARY
HARRY S. TRUMAN ANIMAL IMPORT CENTER
SITE ASSESSMENT REPORT
NAVAL AIR STATION
KEY WEST, FLORIDA**

Measurements	Parameters			
Sample ID	**Date**	**Sulfate (mg/L)**	**Methane (μg/L)**	**Nitrate (mg/L)**
AIC-MW-01	7/25/02	110	1,100	ND
	9/18/02	NA	NA	NA
AIC-MW-03	7/25/02	270	1,100	ND
	9/17/02	300	3,200	0.009
AIC-MW-04	7/25/02	1,000	230	ND
	9/17/02	NA	NA	NA
AIC-MW-05D	7/24/02	NA	NA	NA
	9/18/02	2,400	370	ND

Notes:
NA – Not analyzed
ND – Not detected



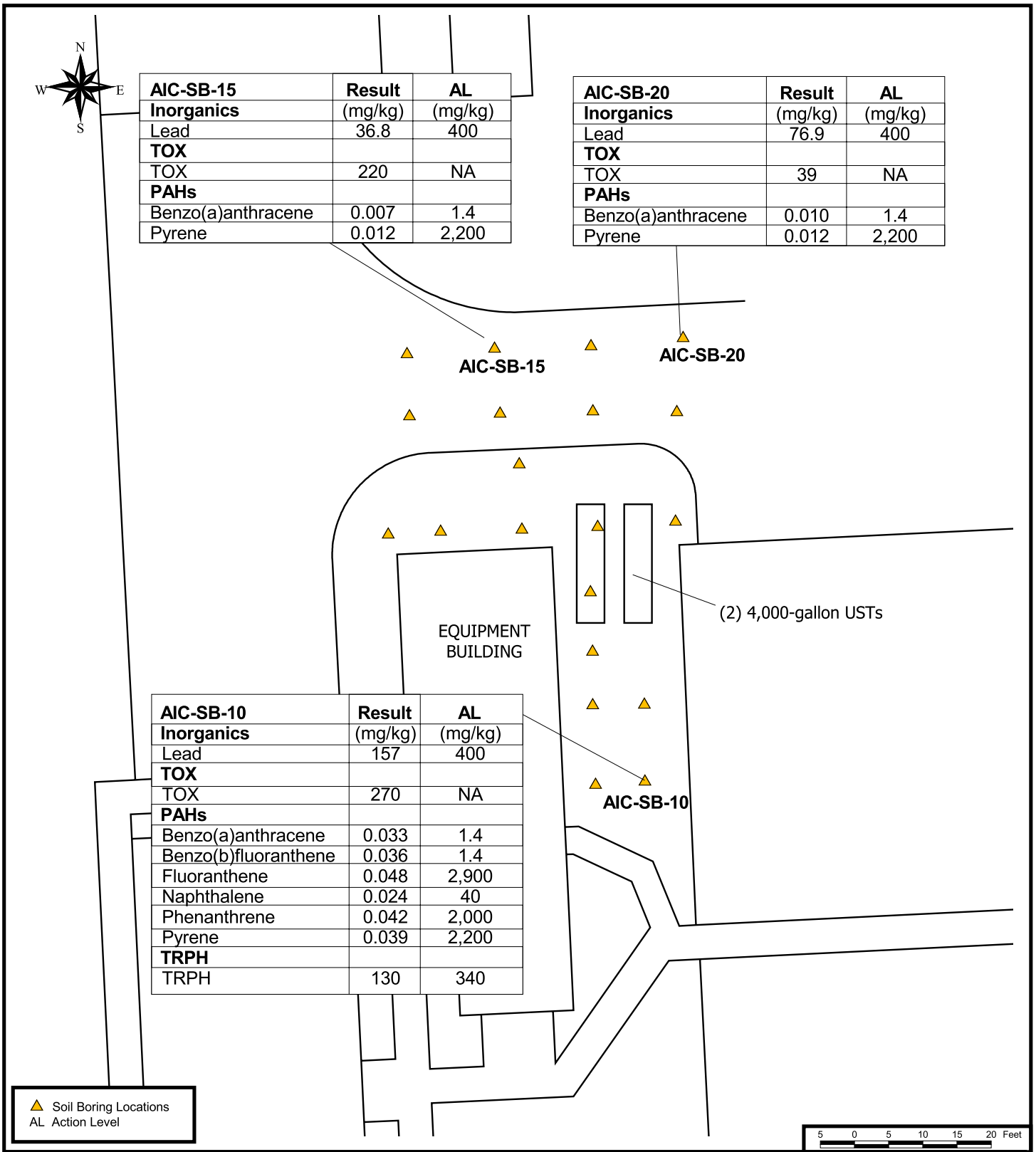
NO.	DATE	REVISIONS

DRAWN BY CM	DATE 12/18/2002
CHECKED BY EHM	DATE 12/18/2002
COST/SCHED-AREA	
SCALE AS NOTED	

SITE ASSESSMENT REPORT
FIGURE 4-1 SOIL HEADSPACE READINGS,
JULY 2002
HARRY S. TRUMAN
ANIMAL IMPORT CENTER
NAVAL AIR STATION
KEY WEST, FLORIDA

CONTRACT NO. N4260	
APPROVED BY CMB	DATE 12/18/2002
APPROVED BY	DATE
DRAWING NO.	REV. 0

P:/GOVERNMENT/KEYWEST/EGIS/IR7_SAR.APR LAYOUT: SOIL HEADSPACE
DATE: 12/18/2002 BY: CM



AIC-SB-15	Result	AL
Inorganics	(mg/kg)	(mg/kg)
Lead	36.8	400
TOX		
TOX	220	NA
PAHs		
Benzo(a)anthracene	0.007	1.4
Pyrene	0.012	2,200

AIC-SB-20	Result	AL
Inorganics	(mg/kg)	(mg/kg)
Lead	76.9	400
TOX		
TOX	39	NA
PAHs		
Benzo(a)anthracene	0.010	1.4
Pyrene	0.012	2,200

AIC-SB-10	Result	AL
Inorganics	(mg/kg)	(mg/kg)
Lead	157	400
TOX		
TOX	270	NA
PAHs		
Benzo(a)anthracene	0.033	1.4
Benzo(b)fluoranthene	0.036	1.4
Fluoranthene	0.048	2,900
Naphthalene	0.024	40
Phenanthrene	0.042	2,000
Pyrene	0.039	2,200
TRPH		
TRPH	130	340

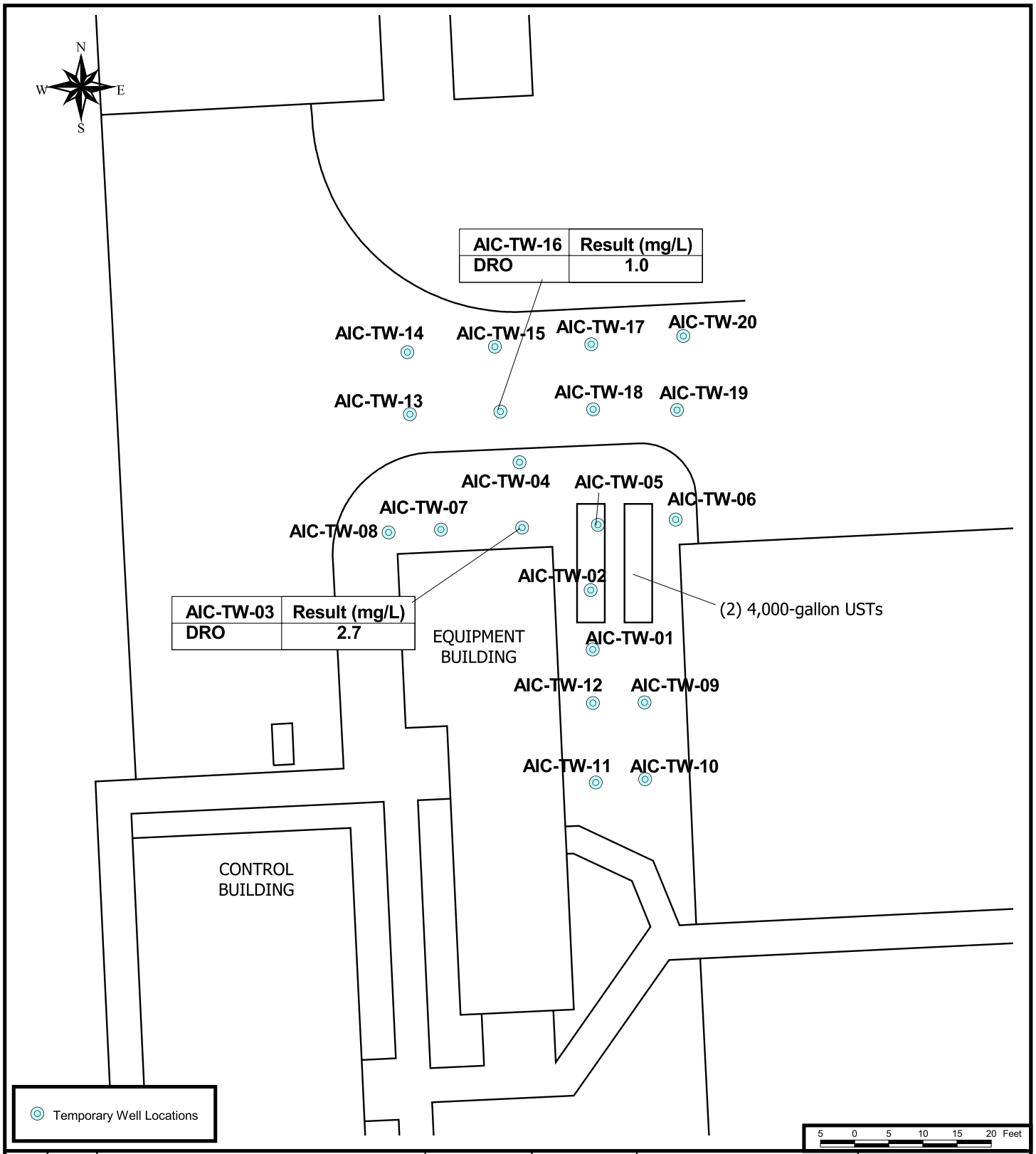
NO.	DATE	REVISIONS

DRAWN BY CM DATE 12/18/2002
CHECKED BY EHM DATE 12/18/2002
COST/SCHED-AREA
SCALE AS NOTED

SITE ASSESSMENT REPORT
FIGURE 4-2 SOIL ANALYTICAL RESULTS, JULY 2002
HARRY S. TRUMAN ANIMAL IMPORT CENTER
NAVAL AIR STATION
KEY WEST, FLORIDA

CONTRACT NO. N4260
APPROVED BY CMB DATE 12/18/2002
APPROVED BY DATE
DRAWING NO.
REV. 1

P:/GOVERNMENT/KEYWEST/EGIS/IR7_SAR.APR LAYOUT: SOIL ANALYTICAL
DATE: 12/18/2002 BY: CM



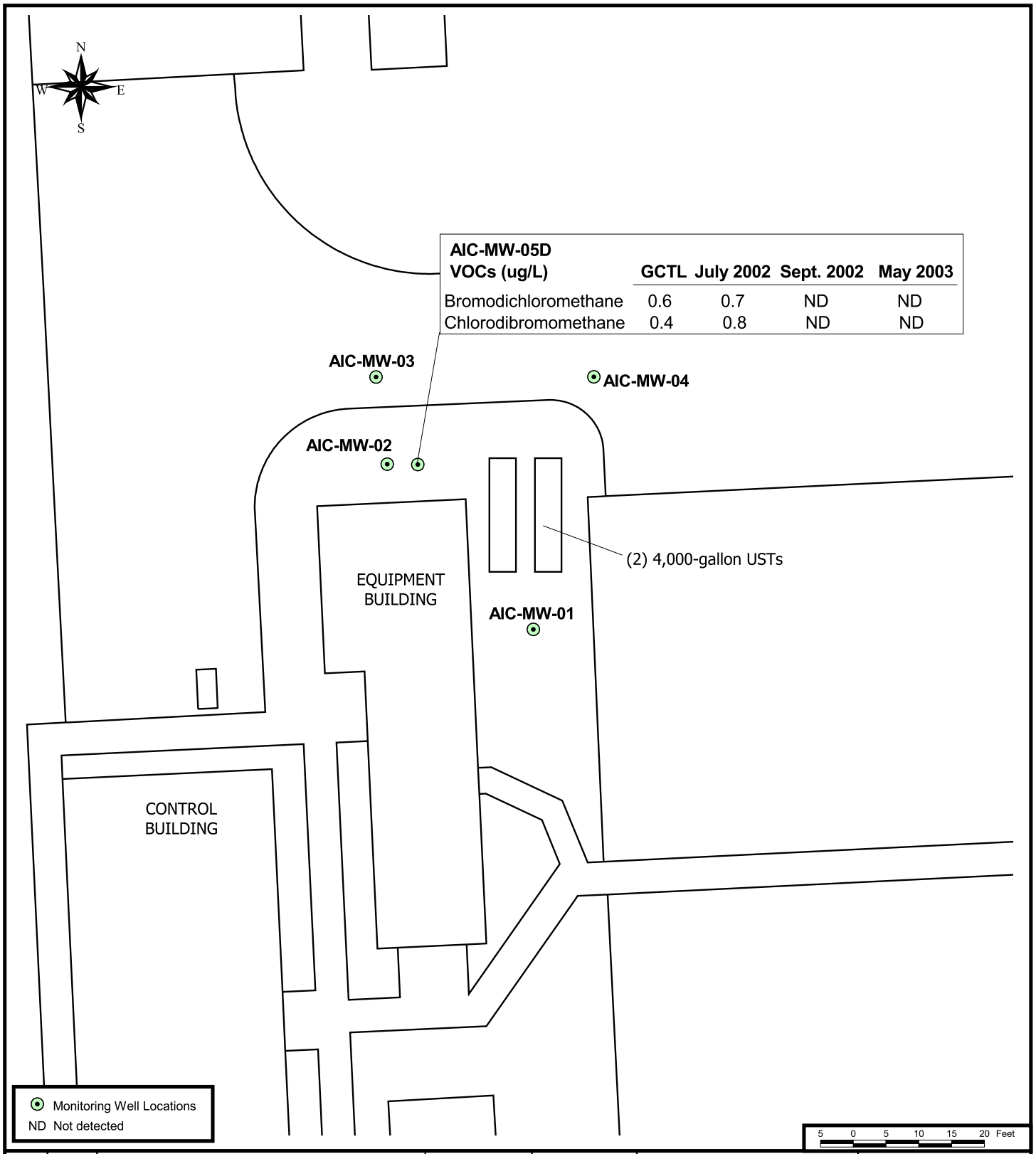
NO.	DATE	REVISIONS

DRAWN BY CM	DATE 12/18/2002
CHECKED BY EHM	DATE 12/18/2002
COST/SCHED-AREA	
SCALE AS NOTED	

SITE ASSESSMENT REPORT
FIGURE 4-3 MOBILE LABORATORY
GROUNDWATER ANALYTICAL RESULTS,
JULY 2002
HARRY S. TRUMAN
ANIMAL IMPORT CENTER
NAVAL AIR STATION
KEY WEST, FLORIDA

CONTRACT NO. N4260	
APPROVED BY CMB	DATE 12/18/2002
APPROVED BY	DATE
DRAWING NO.	REV. 0

P:/GOVERNMENT/KEYWEST/EGIS/IR7_SAR.APR LAYOUT: MOBILE LAB GW RESULTS
DATE: 12/18/2002 BY: CM



AIC-MW-05D VOCs (ug/L)	GCTL	July 2002	Sept. 2002	May 2003
Bromodichloromethane	0.6	0.7	ND	ND
Chlorodibromomethane	0.4	0.8	ND	ND

NO.	DATE	REVISIONS

DRAWN BY MB DATE 08/11/2003
CHECKED BY EHM DATE 08/11/2003
COST/SCHED-AREA
SCALE AS NOTED

SITE ASSESSMENT REPORT
FIGURE 4-4
GROUNDWATER EXCEEDANCES
HARRY S. TRUMAN
ANIMAL IMPORT CENTER
NAVAL AIR STATION
KEY WEST, FLORIDA

CONTRACT NO. N4260
APPROVED BY CMB DATE 08/11/2003
APPROVED BY DATE
DRAWING NO.
REV. 2

P:/GOVERNMENT/KEYWEST/EGIS/IR7_SAR.APR LAYOUT: GW Exceed
DATE: 08/11/2003 BY: MB

5.0 SITE INVESTIGATION SUMMARY

The significant findings from each phase of site assessment activities are discussed below.

5.1 SOURCE OF HYDROCARBONS

Two 4,000-gallon USTs located between the wastewater treatment plant and the barn, were used to store diesel fuel for the boilers and incinerators. An investigation revealed that fuel from one or both of the 4,000-gallon tanks had impacted the site (Hanson Engineers, 1999).

5.2 SITE CONDITIONS

The site is underlain by oolitic limestone fill material to approximately 35 feet bls. Lithologies suggesting the presence of confining layers were not observed at the site. Groundwater elevations in the surficial aquifer ranged from 1.26 to 1.35 feet during July 2002 and 1.62 feet to 1.96 feet during September. Groundwater elevations were calculated from the SWL and TOC elevation survey data. A tidal study at the site revealed the presence of a fluctuation in water levels of 0.26 and 0.45 feet during a 24-hour period. These data points were used to calculate the groundwater flow direction and water table gradient at the time of each gauging event. Groundwater flow at the site during the July 2002 event was radial and to the northeast during the September event. The average groundwater gradient calculated for the site was 0.0031 feet per foot. Hydraulic conductivity values for the site were determined to be 0.72 feet per day from data obtained by slug tests conducted during a site assessment conducted on Boca Chica Key. The groundwater flow velocity was calculated from gradient and hydraulic conductivity values, and is estimated at 0.0075 feet/day. No active potable water supply or irrigation wells occur on Fleming Key.

5.3 SOURCE REMOVAL

In December 1998, the U.S. Navy removed the 4,000-gallon USTs from the site. Contaminated soil was removed from the excavations and stockpiled on the east side of the concrete spill containment area and south of the steel water tank and transformer. The contaminated soil was covered with plastic, and the plastic was held down with concrete blocks. Contaminated groundwater was removed from the excavations and placed in 55-gallon drums. The contaminated soil and groundwater were later removed and disposed. Soil and groundwater samples collected indicated the presence of petroleum contamination under the asphalt drive north of the 4,000-gallon USTs (Hanson Engineers, 1999). One soil sample collected under the asphalt drive produced a TRPH detection of 4,700 mg/kg.

5.4 SOIL ASSESSMENT

Headspace analysis of vadose zone soil samples collected during the investigation did not indicate “excessively contaminated soil” for GAG and KAG constituents, as defined in Chapter 62-770, F.A.C. Lead,

PAHs, and TRPH were detected in the soil samples collected for fixed-base laboratory analysis; however, the concentrations were below SCTLs. Concentrations of all other contaminants of concern (CoCs) were below standard laboratory detection limits.

5.5 GROUNDWATER ASSESSMENT

TRPH was detected in all five wells during the two sampling events at the site; however, no GCTL exceedances were found. PAHs were also detected in HSTAIC groundwater, but were below GCTLs. Two VOC exceedances (bromodichloromethane and chlorodibromomethane) occurred in one sample collected from monitoring well AIC-MW-05D in July 2002. No exceedances of GCTLs were reported in sample results from September 2002. An additional sample was collected from AIC-MW-05D in May 2003 and analyzed for bromodichloromethane and chlorodibromomethane. These constituents were not detected in May 2003. Therefore, two consecutive events (September 2002 and May 2003) have been conducted with no GCTL exceedances.

6.0 CONCLUSIONS AND RECOMMENDATION

The conclusions, based on the data collected during the site assessment performed by TtNUS at the HSTAIC, are summarized as follows:

- The site is underlain by a surficial aquifer comprised of oolitic limestone. No confining layers were encountered within the upper 35 feet of the surficial aquifer.
- Headspace analysis was conducted in the 0-to-4-foot vadose zone nearest to the surface. No vadose zone samples produced OVA readings indicating the presence of "excessively contaminated soil."
- The surficial aquifer is non-potable and tidally influenced in the site vicinity.
- The direction of groundwater flow was radial during one measurement and northeast during another, suggesting a strong tidal influence. The surficial aquifer flows at a calculated velocity of 0.006 feet/day.
- Contaminated soil has previously been excavated and removed where feasible, and no free product occurred at the site during assessment activities.
- The vertical and horizontal extent of contamination has been defined by the investigation.
- Petroleum contaminants were detected in soil samples collected, but were below SCTLs.
- Concentrations of GAG and KAG constituents detected in the five monitoring wells were below GCTLs for two consecutive sampling rounds.

Based on the hydrogeological and chemical data presented in this SAR, and supported by the criteria sited in Chapter 62-770, FAC, the site qualifies for No Further Action.

REFERENCES

ABB (ABB Environmental Services, Inc.), 1994. Contamination Assessment Report – Jet Engine Test Cell, Building A969, prepared for the Department of the Navy, Southern Division Naval Facilities Engineering Command, Tallahassee, Florida.

ABB , 1995. Facility and Remedial Investigation NAS Key West, Workplan, Volume 1 and Sampling and Analysis Plan, Volume 2, prepared for SOUTHDIVNAVFACENGCOM, Tampa, Florida, December 1995.

Bouwer, H and Rice, R.C., 1976. A slug test for determining hydraulic conductivity of unconfined aquifer with completely or partially penetrating wells: Water Resource Research, V 12, No. 3, pp 423-428.

Bouwer, H and Rice, R.C., 1989. The Bouwer and Rice slug test-an update, Groundwater, V 27, No. 3, pp. 304-309.

BRE (Brown & Root Environmental), 1997. Supplemental RCRA Facility Investigation/Remedial Investigation Report for High-Priority Sites, Naval Air Station Key West, Florida, prepared for Department of the Navy, Southern Division, Naval Facilities Engineering Command, Aiken, SC, January.

Davis, S.N., and DeWeist, R.J.M., 1966. Hydrogeology: New York, John Wiley and Sons, Inc., p 463.

Hanson Engineers, 1999. Building and Facilities System Survey Report, Harry S. Truman Animal Import Center, Fleming Key, Florida. Prepared for United State Department of Agriculture Animal and Plan Health Inspection Service, July.

APPENDIX A

RESPONSE TO COMMENTS

RESPONSE TO COMMENTS FROM TRACIE VAUGHT, FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION:

March 3, 2003 Comments:

Comment 1: Section 3.2.3: The wells chosen to calculate the gradient for this site were wrong. Originally AIC-MW-02 and AIC-MW-01 were chosen. The line between these two wells is not perpendicular to the contour lines which show the groundwater flow direction in Figure 3-1. The correct wells to use would be AIC-MW-02 and AIC-MW-04.

Response: Concur. The gradient will be recalculated using the appropriate monitoring wells. The groundwater velocity will also be recalculated based on the new average hydraulic gradient.

Comment 2: Table 4-2, page 4-4: This table is either wrong or misleading. The SCTL levels either need to be labeled with µg/kg in the SCTL column or changed to mg/kg which is the correct unit used for SCTLs in the FAC. 62-777. The depth of the sample taken also needs to be shown in this table.

Response: Units of measurement for the sample result and the SCTL are shown with each parameter group heading. Because some parameter groups are reported in µg/kg by the laboratory, SCTLs were converted to µg/kg. Table 4-2 will be revised, however, to present all results in mg/kg. Sample depths will also be included in Table 4-2.

Comment 3: Table 4-4: Both the RESULT and GCTL columns need to be labeled with the correct unit of measurement of µg/l.

Response: Concur. As with Table 4-2, units are measurement are currently presented with each parameter group heading. However, these units will be moved to the RESULT and GCTL column headings for clarification.

Comment 4: Figure 4-2: This figure needs to be re-done after Table 4-2 is corrected.

Response: Concur. The figure will be revised to present all results in mg/kg.

Comment 5: Appendix E, 1st paragraph: Figure 5-1 is referred to in this paragraph, it should be Figure 3-1.

Response: Appendix E contains hydraulic conductivity results from slug tests conducted at the Jet Engine Test Cell site [Solid Waste Management Unit (SWMU) 9]. As referenced in Section 3.2.4, Appendix E was taken directly from a 1994 Contamination Assessment Report prepared by ABB Environmental Services, Inc. Therefore, the Figure 5-1 referenced in the first paragraph in Appendix is a

reference to Figure 5-1 in the Contamination Assessment Report, not the Site Assessment Report for the Harry S. Truman Animal Import Center. Some text will be added to the first page of Appendix E to clarify the source of information used for hydraulic conductivity.

May 30, 2003 Comments:

Comment 1: The Department recommends that monitoring well AIC-MW-05D-0702 be resampled for volatile organic compounds. Two clean sampling events will enable the site to have an unconditional NFA in place of the conditional NFA that would be required with the present groundwater sampling data.

Response: Concur. Additional sampling of monitoring well AIC-MW-05D for volatile organic compounds will occur until two clean sampling events have taken place. NFA status will then be requested for the site.

APPENDIX B

CLOSURE ASSESSMENT

MEMORANDUM

DATE: 5 Oct 1999
FROM: PAUL SEMMES
TO: Mr. Don Walden

Re: UNDERGROUND STORAGE TANK (UST) REMOVALS AT HARRY S. TRUMAN ANIMAL IMPORT CENTER

Dear Sir:

The Underground Storage Tank (UST) Removals at Harry S. Truman Animal Import Center (HSTAIC), Fleming Key Florida, are complete. The contaminated soil at the site has been removed and disposed of. The closure reports for the contaminated site are enclosed. Please forward as follows to include to copies for your files:

Florida Dept. of Environmental Protection — 2-copies
South District – Storage Tank Division
2295 Victoria Avenue, Suite 364
FT Myers, Florida 33901-2549

Florida Dept. of Environmental Protection — 2-copies
South District, Marathon Branch Office (Ed Russell)
2796 Overseas Highway, Suite 221
Marathon, Florida 33050-4276

Monroe County Health Dept. — 1 copy
Storage Tank Division, Mr. John Carter
Post Office Box 6193
Key West, Florida 33041-6193

Contamination was found at the site and may require further assessment in accordance with 62-770 (FAC).

Please contact Mr. Paul R. Semmes, P.E. at (850) 452-4611 x 104 (888) 418-6026, if you have any questions regarding this matter.

CLOSURE ASSESSMENT
UNDERGROUND STORAGE TANKS
TANKS #1 and #2

ANIMAL IMPORT CENTER
FLEMING KEY, FLORIDA

Prepared by:

Navy Public Works Center
Engineering Department (Code 423.3)
310 John Tower Road
Pensacola, Florida, 32508

Prepared for:

United States Department of Agriculture
Animal and Plant Health Inspection Service
4700 River Road, Unit 115
Riverdale, Maryland 20737

Mr Don Walden
Engineer

August 1999

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Closure Assessment Report
Underground Storage Tanks, Tanks #1 and #2
Harry S. Truman, Animal Import Center
Fleming Key, Florida

Chapter	Title	Page No.
1.0	Facility	1
2.0	Operator	1
3.0	Site Location	1
4.0	Date of Closure	1
5.0	Tank Status	1
6.0	Tank Contents	1
7.0	Tank Condition	2
8.0	Excavation Area	2
9.0	Soil Screening	2
10.0	Conclusions	2
11.0	Recommendations	3
12.0	Closure Assessment	3
13.0	Project Manager	3
14.0	Project Number	3
15.0	Report Date	3

FIGURES

Figure 1: Vicinity Map
Figure 2: Site Map

ATTACHMENTS

Attachment A: Photographs of UST Removal
Attachment B: Disposal Documentation
Attachment C: Storage Tank Registration Form
Attachment D: Application for Closure of Pollutant Storage Tank System
Attachment E: Underground Storage Tank Installation and Removal Form
Attachment F: Closure Assessment Form, Soil and Groundwater Analysis
Attachment G: Discharge Report Form
Attachment H: Decontamination Certification

ACRONYMS

APHIS	Animal and Plant Health Inspection Service
API	American Petroleum Institute
AST	Aboveground Storage Tank
CFR	Code of Federal Regulations
DRMO	Defense Reutilization and Marketing Office
EPA	Environmental Protection Agency
FAC	Florida Administrative Code
FDEP	Florida Department of Environmental Protection
HSTAIC	Harry S. Truman Animal Import Center
OVA	Organic Vapor Analyzer
PWC	Public Works Center, Pensacola, Florida
USDA	United States Department of Agriculture
UST	Underground Storage Tank

CLOSURE ASSESSMENT REPORT
UNDERGROUND STORAGE TANKS
TANKS #1 and #2

1.0 Facility

Harry S. Truman Animal Import Center
Fleming Key, Monroe County, Florida

2.0 Operator

United States Department of Agriculture
Harry S. Truman Animal Import Center
Post Office Box 4120
Key West, Florida 33041

3.0 Site Location

The Harry S. Truman Animal Import Center (HSTAIC) is located near the northern tip of Fleming Key near Key West, Florida (Figure 1). The site is located at the northwest corner of the HSTAIC facility.

4.0 Date of Closure

16 December 1998

5.0 Project Description

The Navy Public Works Center (PWC), Pensacola, Florida was tasked by the Department of Agriculture (USDA), Animal and Plant Health Inspection Service (APHIS), Riverdale, Maryland to remove and properly close two 4000 gallon underground storage tank (UST) systems located near the northwest corner of the Harry S. Truman Animal Import Center (HSTAIC), Fleming Key, Florida. The UST systems were removed, cleaned, and rendered unusable by PWC in accordance with the applicable requirements of the American Petroleum Institute (API) Standard 1604 and the Florida Department of Environmental Protection (FDEP) Storage Tank Regulations (62-761, FAC). Photographs of the removal are presented in Attachment A. The UST's were demolished on-site by PWC and properly disposed by Browning Ferris Inc. (BFI), Key West, Florida (Attachment B).

The Storage Tank Registration Form, Application for Closure of Pollutant Storage Tank System, Underground Storage Tank Installation and Removal Form, Closure Assessment Form, Discharge Form, and Certificate of Decontamination are provided in Attachments C, D, E, F, G and H respectively.

6.0 Tank Contents

The UST's were used to store diesel for operation of the facility's incinerators. The contents of the UST's were emptied by PWC and properly disposed by Atlantic Industrial Services, Inc, Pompano Beach, Florida (Attachment B).

The UST's were emptied and cleaned in accordance with the applicable requirements of the American Petroleum Institute (API) Standards 1604 and 2015 and as defined in 40 CFR 261.7. The rinsate from the cleaning operations was properly disposed by Atlantic Industrial Services, Inc. (Attachment B).

7.0 Tank Condition

The UST's were constructed of double-walled, fiberglass. The UST's were in good condition at the time of removal.

There were signs of leakage around the fill ports and there was product in the vent lines. The fittings and connections were in good condition which indicates that the mode of leakage may have been overfilling.

8.0 Excavation Area

The size of the excavation, was approximately eighteen (18) feet wide by twenty-four (24) feet long and ten (10) feet deep. The excavation was filled with clean fill and compacted to grade.

There was excessively contaminated soil encountered during the UST removal. The excessively contaminated soil was removed completely on the north and east sides of the excavation but not on the south and west sides and bottom of the excavation. The north and east sides of the excavation were bound by concrete walls which allowed for the complete removal of the soil. There was a shallow building foundation system on the west side of the excavation which necessitated minimizing the excavation to preserve the structural integrity of the building.

The contaminated soil was recycled by CSR Rinker Materials Corporation, Miami, Florida and consumed in the manufacturing of portland cement (Attachment B).

9.0 Soil Screening

There were obvious signs of contamination throughout the excavated area. Three (3) soil samples were extracted from around the UST system. The soil samples were collected and screened for organic vapor concentrations using the headspace screening technique. The soil samples were extracted from above and below the UST on the east side of the excavation and from the west side of the excavation. The sample locations and results are presented in Attachment F.

The soil screening was conducted in accordance with the headspace screening criteria in Chapter 62-770 of the Florida Administrative Code (FAC) using an organic vapor analyzer (OVA). The OVA was manufactured by Thermo Environmental Instruments, Inc (Model 680 HVM) and equipped with a flame ionization detector (FID).

10.0 Conclusions

There were indications of petroleum contamination noted. The soil exhibited hydrocarbon readings above the state target levels for storage tank closures. The excessively contaminated soil was removed completely on the north and east sides of the excavation but not on the south and west sides and bottom of the excavation.

11.0 Recommendations

A Site Assessment Report (SAR) should be prepared for this site.

12.0 Closure Assessment

Performed by the Navy Public Works Center (PWC) Pensacola, Florida.

13.0 Project Manager

Paul R. Semmes, P.E.

14.0 Project Number

1856002

15.0 Report Date

30 August 1999

The engineering evaluations and professional opinions rendered in this Closure Assessment that describes the work performed during the storage tank system removal at the Harry S. Truman, Animal Import Center, Fleming Key, Florida, were conducted or developed in accordance with commonly accepted procedures consistent with applicable standards of practice. If conditions are determined to exist differently than those described, the undersigned professional engineer should be notified to evaluate the effects of any additional information on the information described in this report.

PAUL RAPHAEL SEMMES
CERTIFICATE
#44137
STATE OF
FLORIDA
REGISTERED ENGINEER

Paul R. Semmes, P.E.
Professional Engineer
August 1999

FIGURES

Figure 1
Vicinity Map

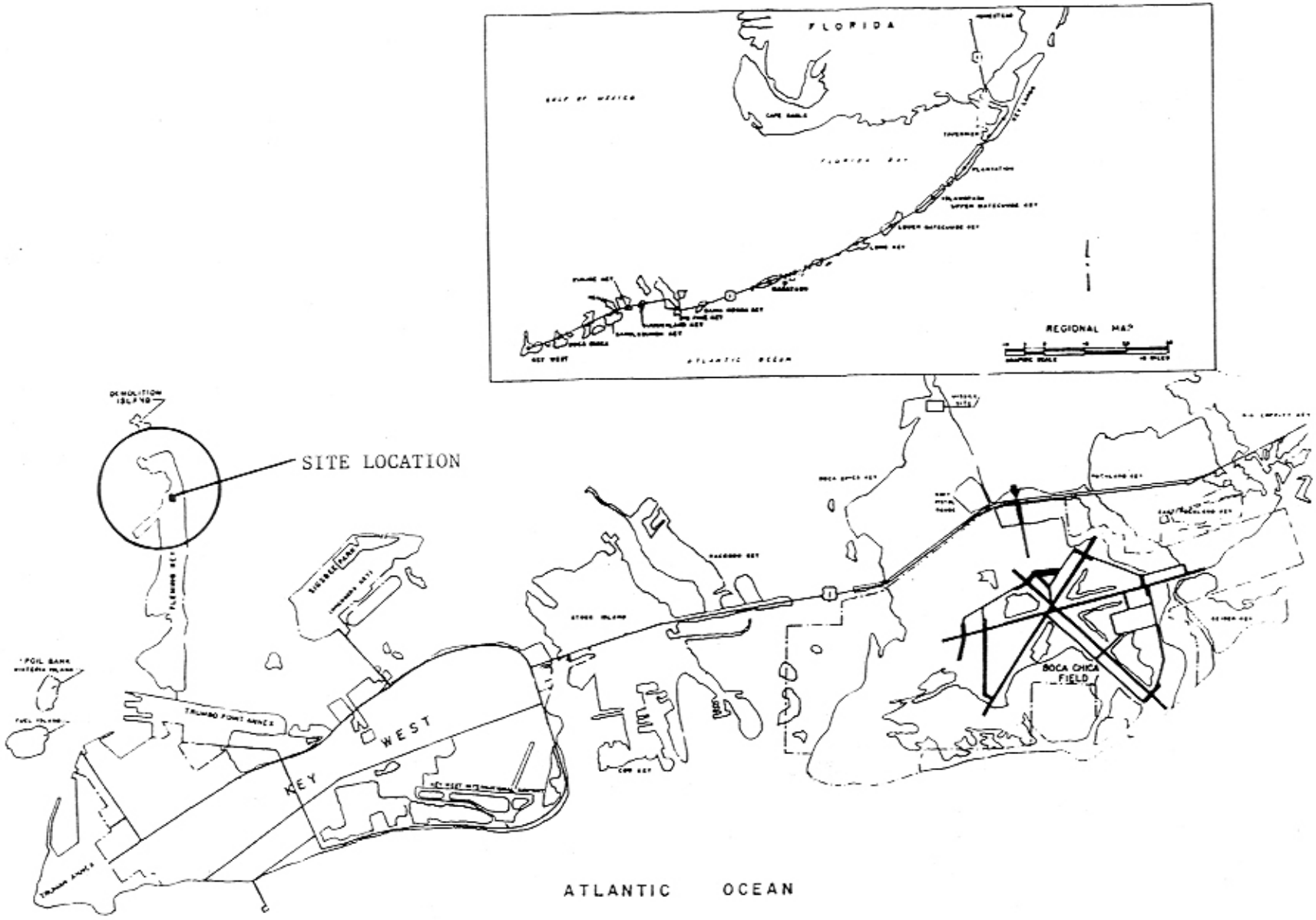
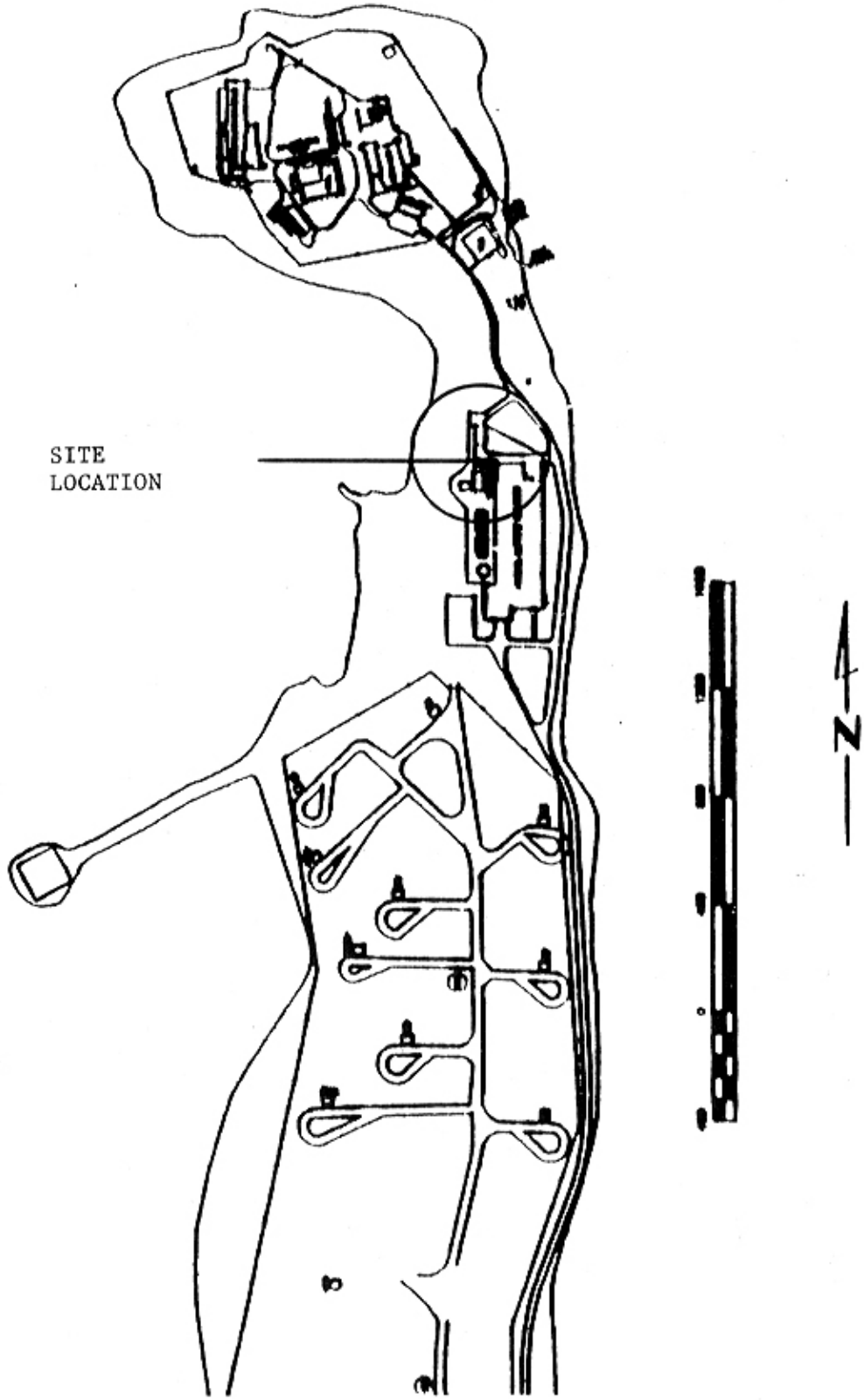

FLORIDA
REGIONAL MAP
SITE LOCATION
KEY WEST
BOCA CHICA FIELD
ATLANTIC OCEAN

Figure 2

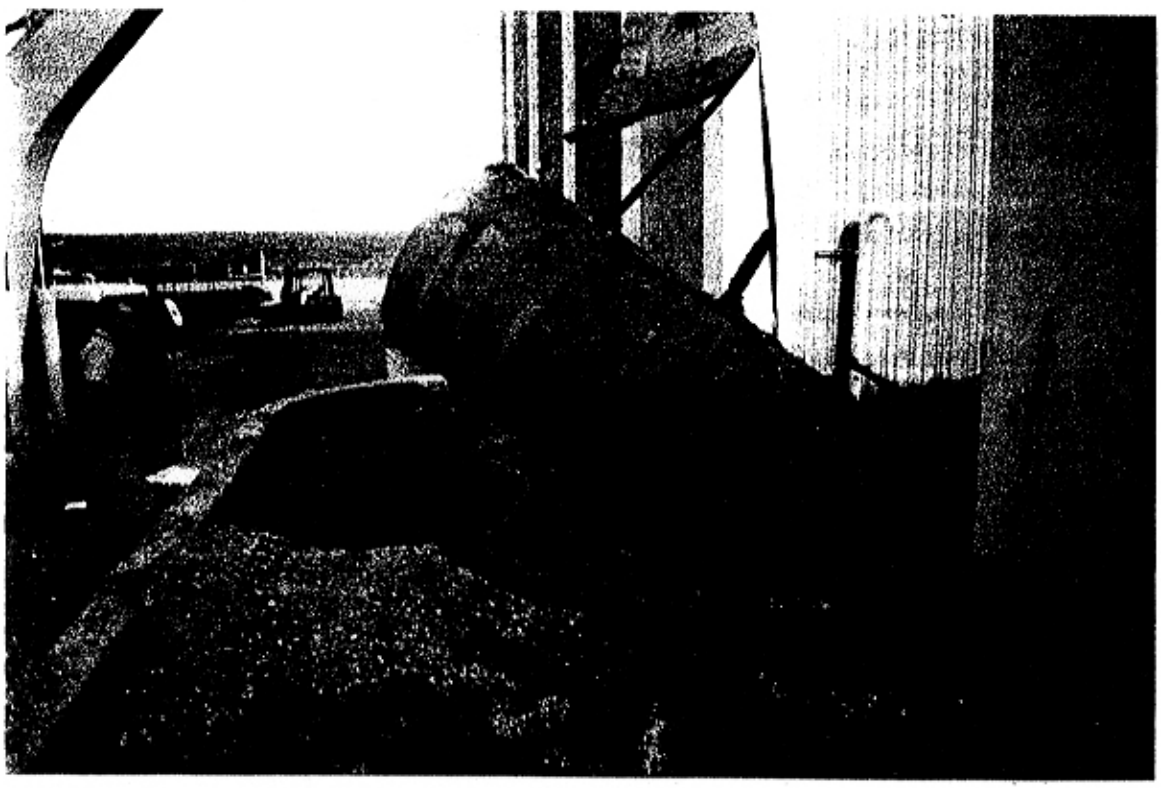
Site Map

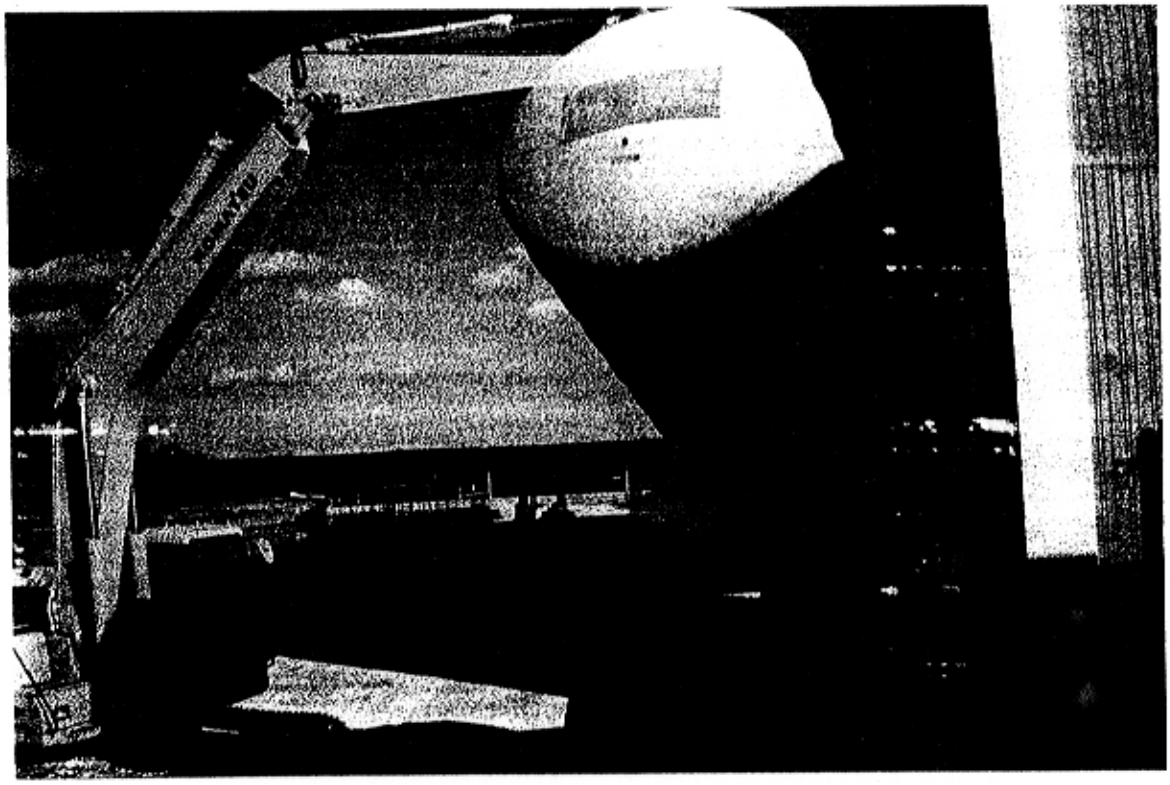

SITE
LOCATION
N

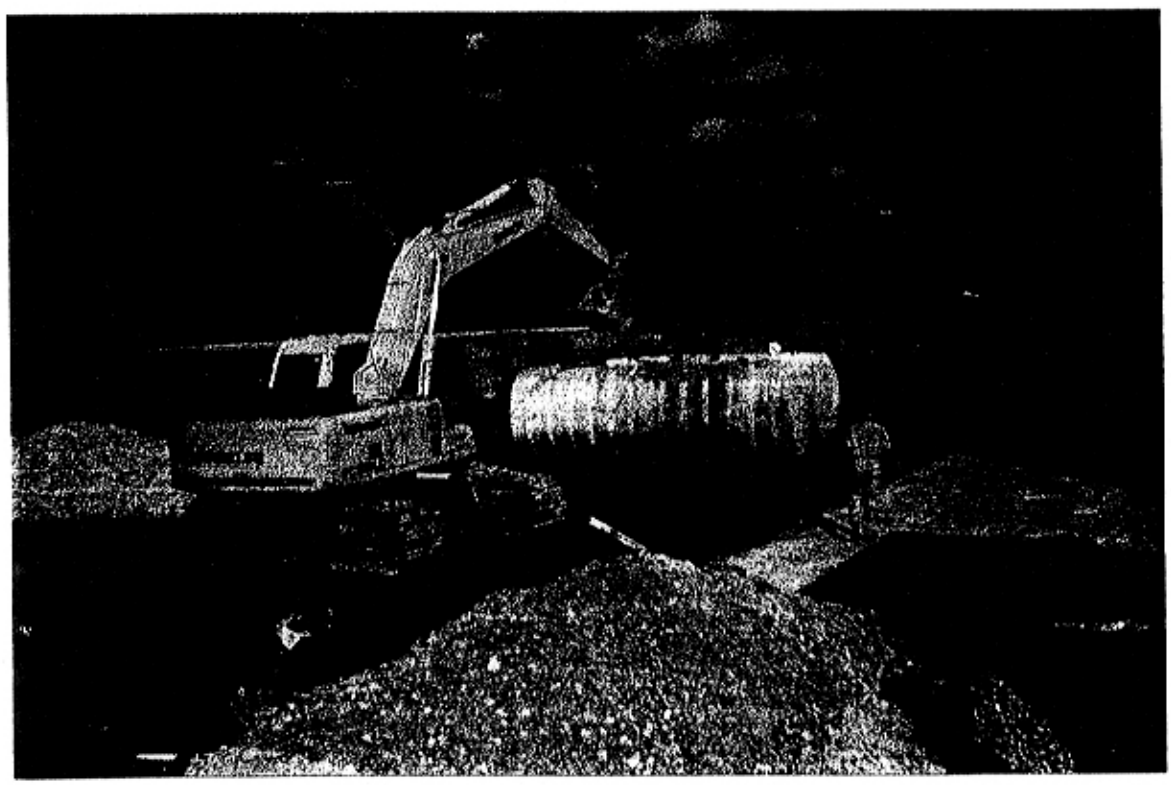
ATTACHMENTS

Attachment A
Photographs

COUSTEAU







Attachment B
Disposal Documents

Atlantic Industrial Services, Inc.

1400 N. W. 13th Avenue
Pompano Beach, Florida 33069

(954) 971-9010
(800) 940-6155
Fax (954) 971-7551
www.usedoil.com

Atlantic Industrial Services, Inc.
"Recycling Waste To Energy"

INDUSTRIAL WASTE MATERIALS TRANSPORTERS MANIFEST

ONLY NON-HAZARDOUS MIXTURES ACCEPTED - READ BOTTOM OF MANIFEST

A. Manifest # 106534

1. Generator's Name and Mailing Address: CNAS Key West - Trumbo Point Annex, P.O. Box 9007, Key West, FL 33040

B. Generator's ID #'s — EPA FL2170024473 — STATE

2. Generator's Phone 305 293-2[illegible] — County of Origin (Monroe)

4. US EPA ID Number FLD 984247882

C. State Transporter's ID FLD 984247882

3. Transporter 1 Company Name: Atlantic Industrial Services, Inc.

D. Dade County D.E.R.M. — WO 98-287-000, RF 98-288-000

5. Designated Facility Name & Address: Atlantic Industrial Services Inc, 1400 N. W. 13th Avenue, Pompano Beach, FL 33069

6. Brow. Co. Facility Lic. # HTS-024-97

7. Final Product Destination: See #13

E. Broward County D.N.R.P. — ☐ 352 ☐ 354 ☐ 355 ☐ 402 ☐ 455 ☐ 559 ☐ 560 ☐ 628 ☒ 733 ☐ 835 ☐ 916 ☐

	HM	7. US DOT Description (Including Proper Shipping Name, Hazard Class, and ID Number)	Auto	Ind.	Mix	8. Containers No.	Type	9. Total Quantity	10. Unit Wt./Vol.	G. CHARGES
a.	X	Combustible Liquid, n.o.s. NA 1193, Packing Group III (Contains Petroleum Distillate's Destined for Recycling)	X			001	TI	6,800	L	T,B,R
b.		Combustible Liquid n.o.s. NA 1993, Packing Group III (Contains Petroleum Distillate's Mixed with Water Destined for Recycling)								
c.		Flammable Liquid, n.o.s. NA 1993, Packing Group II (Contains Petroleum Distillate's Destined for Recycling)								
d.		Flammable Liquid, n.o.s. NA 1993, Packing Group II (Contains Petroleum Distillate's Mixed with Water Destined for Recycling)								
e.		Non-Hazardous Used Coolant								
f.		Other: Specify								

H. Additional Descriptions for Materials Listed Above: (PWD 98661)

☐ C.O.D. ☐ Original Invoice ☒ Bill Cust. ☐ Mail Invoice ☐ VISA ☐ AMEX ☐ MC — Total Due

IMPORTANT: Payment due upon receipt of invoice. A service charge of 1½% per month (18% annum) will be charged on balance over 30 days past due. All past due accounts subject to a minimum service charge of $1.50 per month in the event it shall become necessary to collect the herein above described sums, or any part thereof, the purchaser agrees to pay all costs thereof, including reasonable attorney's fees.

11. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations. I also certify that to the best of my knowledge this shipment does not contain regulated Hazardous Waste as defined in CFR 261.

Printed/Typed Name: PAUL SEMMES — NAM PWC - PENSACOLA FL — Signature — Month 12 Day 14 Year 98

12. Transporter 1 Acknowledgement of Receipt of Materials — Due to possible sludge levels in tanks and expansion or contraction of product, Column #9 (Total Quantity) on this manifest is based upon our best approximations.

Printed/Typed Name: V. R. Nicole — Signature — Month 12 Day 14 Year 98

13. Your waste described on this manifest is destined for recycling purposes through registered disposal facilities on file for our company at the below mentioned government agencies.

Florida Department of Environmental Protection (D.E.P.) - Broward County D.N.R.P. - Dade County D.E.R.M.

IN CASE OF EMERGENCY CALL 1-800-940-6155

For Accidental Discharges of this product use Emergency Response Guidebook #128

Dear Generator: The following chemicals contain hazardous substances which when mixed with used oil reduces the recycling potential and can cause harmful effects to the environment.

DO NOT MIX WITH USED OIL

Antifreeze · Freon · Solvents · Thinner · Degreasers · Detergents · Cleaners · Radiator Fluid · Leaded Gasoline · Cutting Oil

CAN MIX WITH USED OIL

Motor Oils · Diesel Fuel · Grease · Brake Fluids · Hydraulic Fluids · Transmission Fluids

These lists are based on current information and may be expanded as more data becomes available. THANK YOU.

WHITE - Generator CANARY - Transporter PINK - Facility

Atlantic Industrial Services, Inc.

1400 N. W. 13th Avenue
Pompano Beach, Florida 33069

(954) 971-9010
(800) 940-6155
Fax (954) 971-7551
www.usedoil.com

Atlantic Industrial Services, Inc.
"Recycling Waste to Energy"

INDUSTRIAL WASTE MATERIALS TRANSPORTERS MANIFEST

ONLY NON-HAZARDOUS MIXTURES ACCEPTED - READ BOTTOM OF MANIFEST

A. Manifest # 106533

1. Generator's Name and Mailing Address: CO NAS KEY WEST - TRUMBO POINT MILEX, PO BOX 9001, KEY WEST, FL 33040
2. Generator's Phone (305) 293-1593 County of Origin (Monroe)
B. Generator's ID #'s EPA FL 0217023473 STATE
3. Transporter 1 Company Name: Atlantic Industrial Services, Inc.
4. US EPA ID Number FLD 984247882
C. State Transporter's ID FLD 984247882
D. Dade County D.E.R.M. WO 98-287-000 RF 98-268-000
5. Designated Facility Name & Address: Atlantic Industrial Services Inc, 1400 N. W. 13th Avenue, Pompano Beach, FL 33069
6. Brow Co. Facility Lic # HTS-024-97
7. Final Product Destination See #13
E. Broward County D.N.R.P. ☐ 352 ☐ 354 ☐ 355 ☐ 402 ☐ 455 ☐ 559 ☒ 560 ☐ 628 ☐ 783 ☐ 835 ☐ 916 ☐

	HM	7. US DOT Description (Including Proper Shipping Name, Hazard Class, and ID Number)	Auto	Ind.	Mix	8. Containers No.	Type	9. Total Quantity	10. Unit Wt./Vol.	G. CHARGES
a.	X	Combustible Liquid, n.o.s. NA 1993 Packing Group III (Contains Petroleum Distillate's Destined for Recycling)	X			CC1	TT	1,700	G	TBB
b.		Combustible Liquid n.o.s NA 1993 Packing Group III (Contains Petroleum Distillate's Mixed with Water Destined for Recycling)								
c.		Flammable Liquid, n.o.s. NA 1993 Packing Group II (Contains Petroleum Distillate's Destined for Recycling)								
d.		Flammable Liquid, n.o.s NA 1993 Packing Group II (Contains Petroleum Distillate's Mixed with Water Destined for Recycling)								
e.		Non-Hazardous Used Coolant								
f.		Other: Specify								

H. Additional Descriptions for Materials Listed Above: On Site 0800-1000 (PWD # 98G.72)

☐ C.O.D. ☒ Bill Cust. ☐ VISA ☐ AMEX ☐ Original Invoice ☐ Mail Invoice ☒ MC — Total Due

IMPORTANT: Payment due upon receipt of invoice. A service charge of 1½% per month (18% annum) will be charged on balance over 30 days past due. All past due accounts subject to a minimum service charge of $1.50 per month. In the event it shall become necessary to collect the herein above described sums, or any part thereof, the purchaser agrees to pay all costs thereof, including reasonable attorney's fees.

11. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations. I so certify that to the best of my knowledge this shipment does not contain regulated Hazardous Waste as defined in CFR 261.

Printed/Typed Name: X PAUL SEYMOUR NAVY - PWC PENSACOLA, FL — Signature — Month 12 Day 16 Year 88

Due to possible solid sludge losses in tanks and expansion or contraction of product, Column #9 (Total Quantity) on this manifest is based upon our best approximations.

12. Transporter 1 Acknowledgment of Receipt of Materials

Printed/Typed Name: V R Toole — Signature — Month 12 Day 16 Year 88

13. Your waste described on this manifest is destined for recycling purposes through registered disposal facilities on file for our company at the below mentioned government agencies.

Florida Department of Environmental Protection (D.E.P.) - Broward County D.N.R.P. - Dade County D.E.R.M.

IN CASE OF EMERGENCY CALL 1-800-940-6155

For Accidental Discharges of this product use Emergency Response Guidebook #128

Dear Generator: The following chemicals contain hazardous substances which when mixed with used oil reduces the recycling potential and can cause harmful effects to the environment.

DO NOT MIX WITH USED OIL

Antifreeze - Freon - Solvents - Thinner - Degreasers - Detergents - Cleaners - Radiator Fluid - Leaded Gasoline - Cutting Oil

CAN MIX WITH USED OIL

Motor Oils - Diesel Fuel - Grease - Brake Fluids - Hydraulic Fluids - Transmission Fluids

These lists are based on current information and may be expanded as more data becomes available. THANK YOU.

WHITE - Generator CANARY - Transporter PINK - Facility

ADDRESS: USDA - Fleming Sc

INSTRUCTIONS: - Pull + NO Return

RECP REQ | COD | AUTOMANUAL | WAS

ACCT. NO: 012295 | LOC. CODE: 164 | SERV. DATE: 10-18-98

TRANS CODE: | TRANS. DESC:

SYS CODE: 01004400 | RTE: 04 | NBR OF HAULS: 0,1

CONT SIZE: 30 | VOL CODE: Y,D | COMP: N | ON CALL: Y

HAUL CHRG: | DISP CHRG: | OTHER CHRG:

DISP COST: | DISP VOL: | VOL CODE: Y,D

DISP SITE: 403 | ACTUAL DISP SITE: | ACTUAL DISP DATE:

SERV MINUTES: 30 | TRUCK NBR: | DRIVER NBR:

WASTE TYPE: | QTY: | VOL CODE: | WASTE TYPE: | QTY: | VOL CODE:

WASTE TYPE: | QTY: | VOL CODE: | WASTE TYPE: | QTY: | VOL CODE:

BFI CUSTOMER SIGNATURE: DRIVER SIGNATURE:
REORDER ONLY THROUGH BFI / STANDARD REMITTER CONTRACT

LOC. NAME: NAS ~~[illegible]~~ Public Works

SERVICE TICKET 13151850

ADDRESS: Fleming Key

RECP REQ | COD | AUTOMANUAL | WAS

INSTRUCTIONS: Pull + NO Return

ACCT. NO: 012295 | LOC. CODE: 164 | SERV. DATE: 10-18-98

TRANS CODE: | TRANS. DESC:

SYS CODE: 01004400 | RTE: 04 | NBR OF HAULS: 0,1

CONT SIZE: 30 | VOL CODE: Y,D | COMP: N | ON CALL: Y

HAUL CHRG: | DISP CHRG: | OTHER CHRG:

DISP COST: | DISP VOL: | VOL CODE: Y,D

DISP SITE: 403 | ACTUAL DISP SITE: | ACTUAL DISP DATE:

SERV MINUTES: 104 | TRUCK NBR: | DRIVER NBR:

WASTE TYPE: | QTY: | VOL CODE: | WASTE TYPE: | QTY: | VOL CODE:

WASTE TYPE: | QTY: | VOL CODE: | WASTE TYPE: | QTY: | VOL CODE:

BFI CUSTOMER SIGNATURE: DRIVER SIGNATURE:
REORDER ONLY THROUGH BFI / STANDARD REMITTER CONTRACT

LOC. NAME: NAS Public Works

SERVICE TICKET 13151852

ADDRESS: Fleming Key

RECP REQ | COD | AUTOMANUAL | WAS

INSTRUCTIONS: Pull + NO Return

ACCT. NO: 012295 | LOC. CODE: 110 | SERV. DATE: 10-18-98

TRANS CODE: | TRANS. DESC:

SYS CODE: 01004400 | RTE: 04 | NBR OF HAULS: 0,1

CONT SIZE: 30 | VOL CODE: Y,D | COMP: N | ON CALL: Y

HAUL CHRG: | DISP CHRG: | OTHER CHRG:

DISP COST: | DISP VOL: | VOL CODE: Y,D

DISP SITE: 402 | ACTUAL DISP SITE: | ACTUAL DISP DATE:

SERV MINUTES: 65 | TRUCK NBR: | DRIVER NBR:

WASTE TYPE: | QTY: | VOL CODE: | WASTE TYPE: | QTY: | VOL CODE:

WASTE TYPE: | QTY: | VOL CODE: | WASTE TYPE: | QTY: | VOL CODE:

BFI CUSTOMER SIGNATURE: DRIVER SIGNATURE:
REORDER ONLY THROUGH BFI / STANDARD REMITTER CONTRACT

NON-HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No. F L 2 1 7 0 0 2 4 4 7 3
Manifest Document No. T P 8 0 5
2. Page 1 of 1

3. Generator's Name and Mailing Address
Naval Air Station Commanding Officer, NAS
P.O. Box 9007 · Key West, FL 33040-9001
4. Generator's Phone (305 293-2583 CONTACT: Patsy McNeill

Soil Tech #01

5. Transporter 1 Company Name: Soil Tech
6. US EPA ID Number: N/A
(305)828-2362

7. Transporter 2 Company Name
8. US EPA ID Number

9. Designated Facility Name and Site Address
Rinker Environmental Services
1200 NW 137th Ave
Miami, FL 33182
10. US EPA ID Number: F L D 9 8 1 7 5 3 4 8 5

A. Transporter's Phone
B. Transporter's Phone
C. Facility's Phone (800) 226-7647

GENERATOR

11. Waste Shipping Name and Description	12. Containers No.	Type	13. Total Quantity	14. Unit Wt/Vol
a. Non-Regulated Material Petroleum Impacted Soil	001	DT	Est 00022	T
b.				
c.				
d.				

D. Additional Descriptions for Materials Listed Above
A: Petroleum Impacted Soil
B:
C:
D:

E. Handling Codes for Wastes Listed Above

15. Special Handling Instructions and Additional Information

Naval Air Station
Fleming Key/Trumbo Point
Key West, FL 33040-9001

Mail Original To:
Advantage, 2325 5th Ave North, St. Pete, Fl 33713
T9KWN-1648

16. GENERATOR'S CERTIFICATION: I certify the materials described above on this manifest are not subject to federal regulations for reporting proper disposal of Hazardous Waste.

Printed/Typed Name: X MIKE SKINNER
Signature: Mike Skinner
Month Day Year: 08 23 99

TRANSPORTER

17. Transporter 1 Acknowledgement of Receipt of Materials
Printed/Typed Name: Joaquin Ortiz
Signature: [illegible]
Month Day Year: 08 23 99

18. Transporter 2 Acknowledgement of Receipt of Materials
Printed/Typed Name
Signature
Month Day Year

FACILITY

19. Discrepancy Indication Space

20. Facility Owner or Operator: Certification of receipt of waste materials covered by this manifest except as noted in Item 19.

Printed/Typed Name: Mario Aguilar
Signature: [illegible]
Month Day Year: 8 23 99

ORIGINAL-RETURN TO GENERATOR

NON-HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No. FL2170024473 | Manifest Document No. T.P.O.84 | 2. Page 1 of 1

3. Generator's Name and Mailing Address
Naval Air Station Commanding Officer, NAS
P.O. Box 9007 . Key West, FL 33040-9001
4. Generator's Phone (305)293-2583 CONTACT: Patsy McNeill

Soil Tech #68

5. Transporter 1 Company Name: Soil Tech | 6. US EPA ID Number: N/A | (305)828-2362

7. Transporter 2 Company Name | 8. US EPA ID Number

9. Designated Facility Name and Site Address
Rinker Environmental Services
1200 NW 137th Ave
Miami, FL 33182
10. US EPA ID Number: FLD981758485

A. Transporter's Phone
B. Transporter's Phone
C. Facility's Phone (800) 226-7647

11. Waste Shipping Name and Description	12. Containers No.	Type	13. Total Quantity	14. Unit Wt/Vol
a. Non-Regulated Material Petroleum Impacted Soil	001	DT	Est 00022	T
b.				
c.				
d.				

D. Additional Descriptions for Materials Listed Above
A: Petroleum Impacted Soil
B:
C:
D:

E. Handling Codes for Wastes Listed Above

15. Special Handling Instructions and Additional Information

Naval Air Station
Fleming Key/Trumbo Point
Key West, FL 33040-9001

Mail Original To:
Advantage, 2325 5th Ave North, St. Pete, Fl 33713
T9KWN-1648

16. GENERATOR'S CERTIFICATION: I certify the materials described above on this manifest are not subject to federal regulations for reporting proper disposal of Hazardous Waste.

Printed/Typed Name: MIKE SKINNER | Signature: Mike Skinner | Month 08 Day 23 Year 99

17. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name: Guermo Galvez | Signature | Month 08 Day 23 Year 99

18. Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name | Signature | Month Day Year

19. Discrepancy Indication Space

20. Facility Owner or Operator: Certification of receipt of waste materials covered by this manifest except as noted in Item 19.

Printed/Typed Name: Marco Aguilar | Signature | Month 8 Day 23 Year 99

GENERATOR — TRANSPORTER — FACILITY

ORIGINAL-RETURN TO GENERATOR

NON-HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No. F.L.2.1.7.0.0.2.4.4.7.3
Manifest Document No. T.P.8.03
2. Page 1 of 1

3. Generator's Name and Mailing Address
Naval Air Station Commanding Officer, NAS
P.O. Box 9007 . Key West, FL 33040-9001
4. Generator's Phone (305)293-2583 CONTACT: Patsy McNeill

Soil Tech # 361

5. Transporter 1 Company Name: Soil Tech
6. US EPA ID Number: N./.A.
(305)828-2362

7. Transporter 2 Company Name
8. US EPA ID Number

9. Designated Facility Name and Site Address
Rinker Environmental Services
1200 NW 137th Ave
Miami FL 33182
10. US EPA ID Number: F.L.D.9.8.1.7.5.8.4.8.5

A. Transporter's Phone
B. Transporter's Phone
C. Facility's Phone (800) 226-7647

11. Waste Shipping Name and Description	12. Containers No.	Type	13. Total Quantity	14. Unit Wt/Vol
a. Non-Regulated Material Petroleum Impacted Soil	001	DT	Est 00022	T
b.				
c.				
d.				

D. Additional Descriptions for Materials Listed Above
A: Petroleum Impacted Soil
B:
C:
D:

E. Handling Codes for Wastes Listed Above

15. Special Handling Instructions and Additional Information

Naval Air Station
Fleming Key/Trumbo Point
Key West, FL 33040-9001

Mail Original To:
Advantage, 2325 5th Ave North, St. Pete, Fl 33713
T9KWN-1648

16. GENERATOR'S CERTIFICATION: I certify the materials described above on this manifest are not subject to federal regulations for reporting proper disposal of Hazardous Waste.

Printed/Typed Name	Signature	Month	Day	Year
MIKE SKINNER	Mike Skinner	08	23	99

17. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Month	Day	Year
	ANTONIO GONZALES	08	23	99

18. Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Month	Day	Year

19. Discrepancy Indication Space

20. Facility Owner or Operator: Certification of receipt of waste materials covered by this manifest except as noted in Item 19.

Printed/Typed Name	Signature	Month	Day	Year
Mario Aguilar		8	23	99

GENERATOR
TRANSPORTER
FACILITY

ORIGINAL-RETURN TO GENERATOR

NON-HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No. F L 2 1 7 0 0 2 4 4 7 3
Manifest Document No. T.P.0.02
2. Page 1 of 1

3. Generator's Name and Mailing Address
Naval Air Station Commanding Officer, NAS
P.O. Box 9007. Key West, FL 33040-9001
4. Generator's Phone (305 293-2583 CONTACT: Patsy McNeill

Soil Tech #35

5. Transporter 1 Company Name
Soil Tech
6. US EPA ID Number
N / A

(305)828-2362

7. Transporter 2 Company Name
8. US EPA ID Number

9. Designated Facility Name and Site Address
Rinker Environmental Services
1200 NW 137th Ave
Miami, FL 33182
10. US EPA ID Number
F I D 9 8 1 7 5 8 4 8 5

A. Transporter's Phone
B. Transporter's Phone
C. Facility's Phone (800) 226-7647

11. Waste Shipping Name and Description	12. Containers No.	Type	13. Total Quantity	14. Unit Wt/Vol
a. Non-Regulated Material Petroleum Impacted Soil	001	DT	Est 00022	T
b.				
c.				
d.				

D. Additional Descriptions for Materials Listed Above
A: Petroleum Impacted Soil
B:
C:
D:

E. Handling Codes for Wastes Listed Above

15. Special Handling Instructions and Additional Information

Naval Air Station
Fleming Key/Trumbo Point
Key West, FL 33040-9001

Mail Original To:
Advantage, 2325 5th Ave North, St. Pete, Fl 33713
T9KWN-1648

16. GENERATOR'S CERTIFICATION: I certify the materials described above on this manifest are not subject to federal regulations for reporting proper disposal of Hazardous Waste.

Printed/Typed Name: X MIKE SKINNER
Signature: Mike Skinner
Month Day Year: 08 23 99

17. Transporter 1 Acknowledgement of Receipt of Materials
Printed/Typed Name: BENIENO FLORES
Signature:
Month Day Year: 8 23 99

18. Transporter 2 Acknowledgement of Receipt of Materials
Printed/Typed Name
Signature
Month Day Year

19. Discrepancy Indication Space

20. Facility Owner or Operator: Certification of receipt of waste materials covered by this manifest except as noted in Item 19.

Printed/Typed Name: Mario Hamilton
Signature:
Month Day Year: 8 23 99

GENERATOR
TRANSPORTER
FACILITY

ORIGINAL-RETURN TO GENERATOR

NON-HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No. FL 2 1 7 0 0 2 4 4 7 3 — Manifest Document No. TP.8.0.1 — 2. Page 1 of 1

3. Generator's Name and Mailing Address
Naval Air Station Commanding Officer, NAS
P.O. Box 9007, Key West, FL 33040-9001
4. Generator's Phone (305 293-2583 CONTACT: Patsy McNeill

Soil Tech #67

5. Transporter 1 Company Name: Soil Tech — 6. US EPA ID Number: N/A

(305)828-2362

7. Transporter 2 Company Name — 8. US EPA ID Number

9. Designated Facility Name and Site Address: Rinker Environmental Services, 1200 NW 137th Ave, Miami, FL 33182 — 10. US EPA ID Number: F L D 9 8 1 7 5 8 4 8 5

A. Transporter's Phone
B. Transporter's Phone
C. Facility's Phone (800) 226-7647

11. Waste Shipping Name and Description	12. Containers No.	Type	13. Total Quantity	14. Unit Wt/Vol
a. Non-Regulated Material Petroleum Impacted Soil	001	DT	EST 00022	T
b.				
c.				
d.				

D. Additional Descriptions for Materials Listed Above
A: Petroleum Impacted Soil
B:
C:
D:

E. Handling Codes for Wastes Listed Above

15. Special Handling Instructions and Additional Information

Naval Air Station
Fleming Key/Trumbo Point
Key West, FL 33040-9001

Mail Original To:
Advantage, 2325 5th Ave North, St. Pete, Fl 33713
T9KWN-1648

16. GENERATOR'S CERTIFICATION: I certify the materials described above on this manifest are not subject to federal regulations for reporting proper disposal of Hazardous Waste.

Printed/Typed Name: MIKE SKINNER — Signature: Mike Skinner — Month 08 Day 23 Year 99

17. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name: MARIO — Signature: [illegible] — Month 08 Day 23 Year 99

18. Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name — Signature — Month Day Year

19. Discrepancy Indication Space

20. Facility Owner or Operator: Certification of receipt of waste materials covered by this manifest except as noted in Item 19.

Printed/Typed Name: Mario Aguilar — Signature: [illegible] — Month 8 Day 23 Year 99

GENERATOR — TRANSPORTER — FACILITY

ORIGINAL-RETURN TO GENERATOR

CSR

Rinker

CERTIFICATE OF CONSUMPTION / REUSE

THE FOLLOWING MATERIALS WERE INTRODUCED INTO RINKERS MATERIAL SUBSTITUTION PROGRAM AND CONSUMED IN THE MANUFACTURING OF PORTLAND CEMENT:

MATERIALS SOURCE: NAVAL AIR STATION
BOCA CHICA
HANGAR A-936
KEY WEST, FL.

TRANSPORTER: SOIL TECH

DATE	DELIVERY #	VOLUME	
08/23/99	TP001	16.71 TONS	NON-HAZ PETRO.MATERIALS
08/23/99	TP002	19.70 TONS	
08/23/99	TP003	19.93 TONS	
08/23/99	TP004	20.59 TONS	
08/23/99	TP005	18.45 TONS	
08/23/99	BC001	19.97 TONS	
08/23/99	BC002	23.99 TONS	
08/23/99	BC003	25.05 TONS	
08/23/99	BC004	24.79 TONS	
08/24/99	BC005	17.13 TONS	

TOTAL RECEIVED: 206.31 TONS

RINKER ENVIRONMENTAL SERVICES

DATE 9/17/99

CSR Rinker Materials Corporation, 1200 N.W. 137th Avenue, Miami, FL 33182, PO Box 650679, Miami, FL 33265-0679
Telephone (305) 221-7645 Facsimile (305) 223-5403

Attachment C
Storage Tank
Registration Form

Florida Department of Environmental Protection
Twin Towers Office Bldg. • 2600 Blair Stone Road • Tallahassee, Florida 32399-2400

Storage Tank Facility Registration Form

DEP Form # 62-761.900(2)
Form Title Storage Tank Registration Form
Effective Date: July 13, 1998
DEP Application No _____ (Filled in by DEP)

omit a completed form for the facility when registration of storage tanks or compression vessels is required by Chapter 376.303, Florida Statutes

Please review *Registration Instructions* before completing the form.

ase check all that apply	[ ] New Registration	[ ] New Owner	[ ] New Tanks
	[ ] Facility Info Update/Correction	[ ] Owner Info Update/Correction	[x] Tank Info Update/Correction

FACILITY INFORMATION County: Monroe | DEP Facility ID: 44/9103622

acility Name: US Department of Agriculture
acility Address: Animal Import Center City: Fleming Key Zip: 33041
acility Contact: Mr Ray Otero Business Phone: (305) 293-4800
acility Type(s): F NAICS Code: _____ Financial Responsibility: C

4 Hour Emergency Contact: Mr Phil Farmer Emergency Phone: (305)295-8812

. **RESPONSIBLE PERSON INFORMATION** - Identify individual(s) or Business(es) responsible for storage tank management, fueling operations, and/or leanup activities at the facility location named above. **Provide additional information in an attachment if necessary.**

		Facility - Responsible Person Relation Type:	Effective Date
Name:	US Department of Agriculture	[√] Facility Account Owner (pays fees)	
Mail address:	4700 River Road, Unit 115	Facility Account Owner information must be provided when the facility contains active (in-use) storage tanks on site.	
City, ST, Zip:	Riverdale, Maryland 20737		
Contact:	Mr Don Walden	STCM Account Number (if known)	
Telephone:	(301)734-4475		

Identify other appropriate facility relationships for this party: [X] Facility Owner/Operator [ ] Property Owner [X] Storage Tank Owner

	Other owner, relationship type(s)	Effective Date
Name:	[ ] Facility Owner/Operator	
Mail address:	[ ] Property Owner	
City, ST, Zip:	[ ] Storage Tank Owner	
Contact:	[ ] Other:	
Telephone:		

C. **TANK/VESSEL INFORMATION** - Complete one row for each storage tank or compression vessel system located at this facility.

Tank ID	T/V	A/U	Capacity	Installed	Content	Status/Effective Date		Construction	Piping	Monitoring
#1	T	U	4000	1978	M	B	12/16/98	E	BI	
#2	T	U	4000	1978	M	B	12/16/98	E	BI	
#3	T	U	8000	1978	G	B	12/15/98	E	BI	

Certified Contractor (peforming tank installation or removal): N/A DBPR License No.: _____

Registration Certification: **To the best of my knowledge and belief, all information submitted on this form is true, accurate, and complete.**

Raymond Otero Facility Manager — Printed Name & Title
Raymond Otero — Signature
2/17/99 — Date

DEP 62-761.900(2)

Northwest District 160 Governmental Center Blvd. | Northeast District 7825 Baymeadows Way, Suite B200 | Central District 3319 Maguire Blvd., Suite 232 | Southwest District 3804 Coconut Palm Drive | Southeast District 400 North Congress Ave., | South District 2295 Victoria Ave., | Marathon Branch Office 2796 Overseas Hwy.,

Attachment D
Application for Closure of Pollutant Storage Tank System

APPLICATION FOR CLOSURE OF POLLUTANT STORAGE TANK SYSTEM

Provide the facility information requested below.

FDEP Facility # 44/9103622 Facility Name U. S. D. A.

Facility Location Harry S. Truman Animal Import Center, Fleming Key, Florida

Property Owner U. S. D. A., Animal and Health Inspection Service

Property Owner Address 4700 River Road, Unit 115, Riverdale, Maryland 20737

Phone (301) 734-4475

Method of Tank Closure Removal

Pollutant Storage Systems Specialty Contractor (PSSSC) who will be on site supervising closure activities. Attach copy of PSSSC license.

Individual Licensed as PSSSC N/A PSSSC # N/A

Firm U.S. Navy - Public Works Center (PWC)

Address 310 John Tower Road, Pensacola, FL 32508

Indicate the firm (s) that will degas, remove, and transport the tank(s), and the method of degassification.

Degassification Method Air Eduction (API 1604-4.2.5)

Firm Removing Tanks U.S. Navy - Public Works Center (PWC)

Contact Mr. Paul Semmes, P.E. Phone (850) 452-4611 x 104

Firm Transporting Tanks N/A (Demolished On-Site)

Contact Mr Ron Westhoff Phone (850) 452-4563

Firm Receiving Tanks for Ultimate Disposal B.F.I.

Contact Mr Greg Sullivan Phone (305) 296-7548

Indicate the laboratory that will conduct groundwater analysis.

Contracted Laboratory U.S. Navy - PWC Phone (850) 452-3180

Contact Mr. Joe Moore FDEP QA/QC 920121G

Indicate firm(s) transporting and disposing of contaminated soils.

Firm Transporting Soils N/A

Contact _____ Phone _____

Firm Remediating/Disposing Soils N/A

Contact _____ Phone _____

Disposal/Remediation Method _____

Indicate the firm(s) that will transport and ultimately dispose of residual product and sludge from the tanks.

Firm Transporting Residual Product and Sludge Atlantic Industrial Services, Inc.

Contact Ms Denise Sais Phone (954) 971-9010

Firm Receiving/Disposal Residual Product and Sludge Atlantic Industrial Services, Inc.

Contact Ms Denise Sais Phone (800) 940-6155

Indicate the firm and names of personnel that will conduct field sampling.

Contracted Firm U.S. Navy - Public Works Center (PWC)

Contact Mr. Paul Semmes, P.E. Phone (850) 452-4611 x 104

Person (s) Sampling Mr. Paul Semmes, P.E.

Equipment used for soil screening (Specific Make and Model) Organic Vapor Analyzer (OVA) Thermo Environmental (680 HVM) equipped w/Flame Ionization Detector (FID).

Attachment E
Underground Storage Tank Installation and Removal Form

Florida Department of Environmental Protection
Twin Towers Office Bldg.•2600 Blair Stone Road•Tallahassee, Florida 32399-2400

DEP Form # 62-761.900(5)
Form Title: UST Contractor Form
Effective Date

Underground Storage System Installation and Removal Form for Certified Contractors

ollutant Storage Systems Contractor as defined in Section 489.113, Florida Statutes (certified contractors as defined in Section 62-61.200, Florida Administrative Code) shall use this form to certify that the installation, replacement or removal of the underground orage tank system(s) located at the address listed below was performed in accordance with Department Reference Standards. This cludes system components such as dispenser liners, piping sumps, and overfill protection devices.

General Facility Information

acility Name: Harry S. Truman Animal Import Center	DEP Facility Identification No.: 44/9103622
treet Address (physical location): Harry S. Truman Animal Import Center, Fleming Key, Florida	
County: Monroe	Telephone #: (305) 293-4800
Owner Name: US Department of Agriculture	Telephone #: (301) 734-4475
Owner Address: 4700 River Road, Unit 115, Riverdale, Maryland 20737	

Storage Tank System Information

Number of Tanks Installed: None (0)	Number of Tanks Removed: Three (3)
Date Work Initiated: 12/15/98	Date Work Completed: 12/20/98
Tank(s) Manufactured by: Unknown	
Description of work Completed: Removal of three (3) UST's	

Certification

I hereby certify and attest that I am familiar with the facility that is registered with the Florida Department of Environmental Protection; that to the best of my knowledge and belief, the storage tank system installation, replacement or removal at this facility was conducted in accordance with Chapter 489, Florida Statutes, Section 376.303, Florida Statutes, and Chapter 62-761, Florida Administrative Code, and its adopted reference standards and documents for underground storage tank systems.

Navy Public Works Center, Pensacola
(Type or Print)
Certified Pollutant Tank Contractor Name

PSSC Number
Pollutant Storage Systems
Contractor License Number

Certified Tank Contractor Signature

Date

Johnnie Kizer
Field Supervisor Name

2-8-99
Date

The owner or operator of the facility must register the tanks with the Department upon completion of the installation. The installer must submit this form to the County no more than 30 days after the completion of installation, replacement, or removal of a storage tank system.

Attachment F
Closure Assessment Form

Florida Department of Environmental Protection

Twin Towers Office Bldg. ● 2600 Blair Stone Road ● Tallahassee, Florida 32399-2400

DEP Form # 62-761.900(6)
Form Title Closure Assessment Form
Effective Date December 10, 1990
DEP Application No. _____ (Filled in by DEP)

Closure Assessment Form

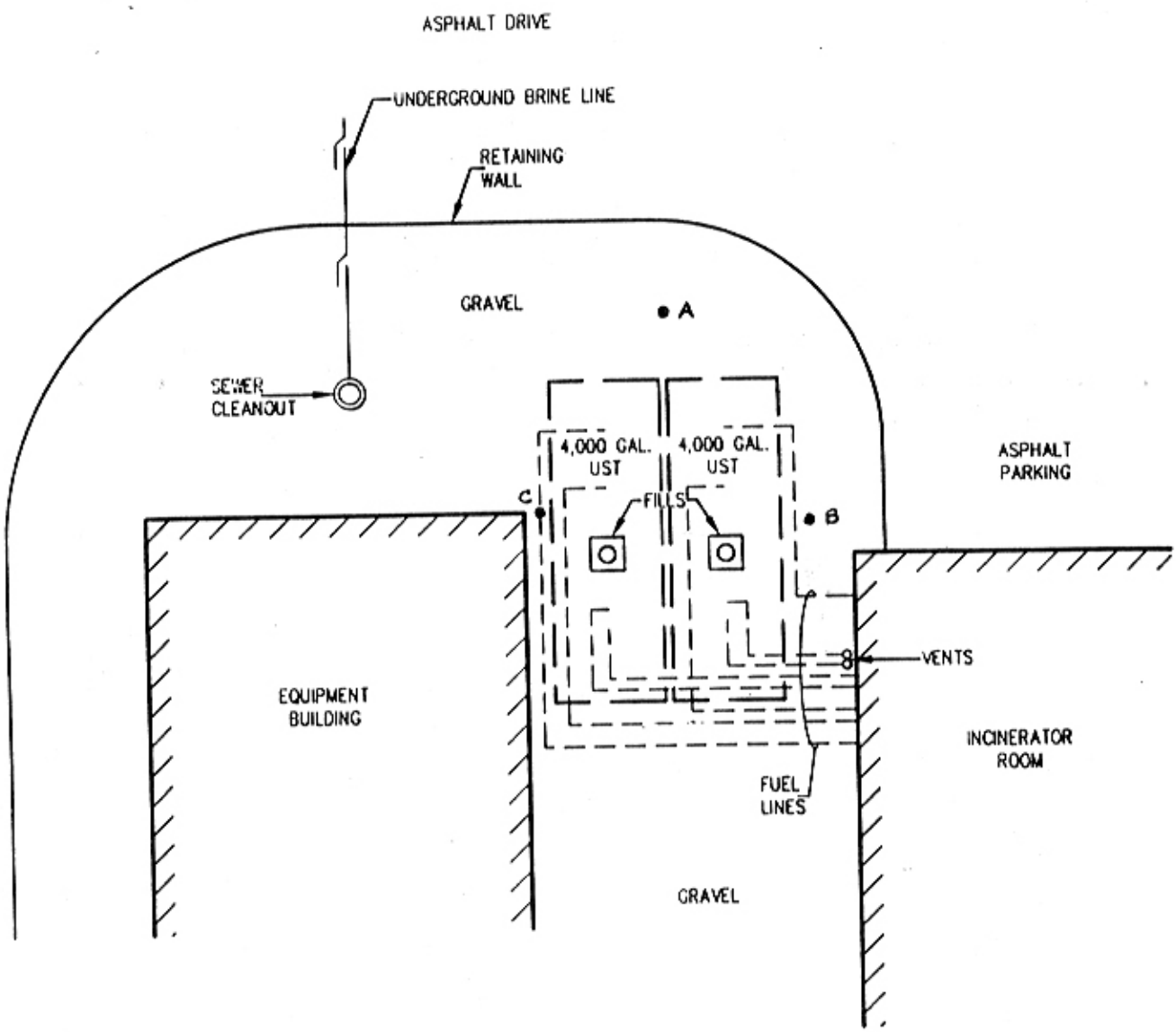
wners of storage tank systems that are replacing, removing or closing in place storage tanks shall use this form to demonstrate that a storage ystem closure assessment was performed in accordance with Rule 62-761.800(3) or 62-762.800(3), Florida Administrative Code.

Please Print or Type
Complete All Applicable Blanks

1. Date 2/2/99
2. DEP Facility ID Number: 44/9103622 3. County Monroe
4. Facility Name: Harry S. Truman Animal Import Center
5. Facility Owner: US Department of Agriculture, Animal and Health Inspection Service
6. Facility Address: Harry S. Truman Animal Import Center
7. Mailing Address: Post Office Box 4120, Key West, Florida 33041
8. Telephone Number: (305) 293-4800 9. Facility Operator: Ray Otero
10. Are the Storage Tank(s): **(Circle one or both)** A. Aboveground or B. Underground
11. Type of Product(s) Stored: Diesel
12. Were the Tank(s): **(Circle one)** A. Replaced B. Removed C. Closed in Place D. Upgraded (aboveground tanks only)
13. Number of Tanks closed: Two (2) 14. Age of Tanks: Twenty-One (21)

Facility Assessment Information

Yes	No	Not Applicable	
☒	☐		1. Was a Discharge Reporting Form submitted to the Department? If yes, When: 7/1/98 Where: MCHD, FDEP
☒	☐		2. Is the depth to ground water less than 20 feet?
☐	☒	☐	3. Are monitoring wells present around the storage system? If yes, please specify ☐ Vapor Monitoring ☐ Water Monitoring
☐	☒	☐	4. Is there free product present in the monitoring wells or within the excavation?
☐	☐	☒	5. Were the petroleum hydrocarbon vapor levels in the soil greater than 500 parts per million for gasoline? Specify sample type: ☐ Vapor Monitoring wells ☐ Soil sample(s)
☒	☐	☐	6. Were the petroleum hydrocarbon vapor levels in the soils greater than 50 parts per million for diesel/kerosene? Specify sample type: ☐ Vapor Monitoring wells ☒ Soil sample(s)
☐	☐	☒	7. Were the analytical laboratory results of the ground water sample(s) greater than the allowable state target levels? (See target levels on reverse side of this form and supply laboratory data sheet(s).
☐	☐	☒	8. If a used oil storage system, did a visual inspection detect any discolored soil indicating a release?
☐	☒	☐	9. Are any potable wells located within 1/4 of a mile radius of the facility?
☒	☐	☐	10. Is there a surface water body within 1/4 mile radius of the site? If yes, indicate distance: 500'
☒	☐	☐	11. A detailed drawing or sketch of the facility that includes the storage system location, monitoring wells, buildings, storm drains, sample locations, and dispenser locations must accompany this form.
☐	☐	☒	12. If a facility has a pollutant storage tank system that has both gasoline and kerosine/diesel stored on site, both EPA method 602 and EPA method 610 must be performed on the ground water samples.



NOTE:
UTILITY LOCATIONS ARE APPROXIMATE AND SHOWN FOR GENERAL INFORMATIONAL USE ONLY. THEY SHOULD NOT BE CONSIDERED INCLUSIVE AND/OR ACCURATE AND SHOULD NOT BE REFERENCED FOR ANY OTHER PURPOSE.

SCALE IN FEET

10 0 10 20

N

LEGEND

● BORING LOCATION

SITE PLAN - 4,000 GAL. UST'S

UST REMOVAL
HSTAIC
FLEMING KEY, FLORIDA

Summary of OVA Readings

Closure Assessment Report
Underground Storage Tanks, Tanks #1 and #2
Harry S. Truman Animal Import Center
Fleming Key, Florida

Hand Auger Sample No.	Depth (Feet)	Unfiltered (ppm)	Filtered (ppm)	Total Hydrocarbon Readings (ppm)
SS-A	2	170	1	169
SS-B	10	67	<1	67
SS-C	5	377	<1	377

Readings for unfiltered samples are total hydrocarbon readings including methane; readings for filtered samples are methane only.

Notes: ppm = parts per million.

Attachment G
Discharge Report Form

DER Form # 62-761.900(1)
Form Title Discharge Reporting Form
Effective Date December 10, 1996
DEP Application No. (Filled in by DEP)

Florida Department of Environmental Protection

Twin Towers Office Bldg. ● 2600 Blair Stone Road ● Tallahassee, Florida 32399-2400

Discharge Reporting Form

se this form to notify the Department of Environmental Protection of:

1. Results of tank tightness testing that exceed allowable tolerances within ten days of receipt of test result.
2. Petroleum discharges exceeding 25 gallons on pervious surfaces as described in Section 62-761.460 F.A.C. within one working day of discovery.
3. Hazardous substance (CERCLA regulated), discharges exceeding applicable reportable quantities established in 62-761.460(2) F.A.C., within one working day of the discovery.
4. Within one working day of discovery of suspected releases confirmed by: (a) released regulated substances or pollutants discovered in the surrounding area, (b) unusual and unexplained storage system operating conditions, (c) monitoring results form a leak detection method or from a tank closure assessment that indicate a release may have occurred, or (d) manual tank gauging results for tanks of 550 gallons or less, exceeding ten gallons per weekly test or five gallons averaged over four consecutive weekly tests.

Mail to the DEP District Office in your area

PLEASE PRINT OR TYPE
Complete all applicable blanks

1. DEP Facility ID Number: _____ 2. Tank Number: _____ 3. Date 7-1-98

4. Facility Name: Harry S. Truman Animal Import Center

Facility Owner or Operator: United States Department of Agriculture

Facility Address: Trumble Point, Flemming Key, FL 33041

Telephone Number: (305) 2934800 County: Monroe

Mailing Address: P.O. Box 4120, Key West, FL 33041 Attn: Maxwell Yao

5. Date of receipt of test results or discovery: 6-29-98 month/day/year

6. Method of initial discovery (circle one only)
   - A. Liquid detector (automatic or manual)
   - B. Vapor detector (automatic or manual)
   - C. Tightness test (underground tanks only)
   - D. Emptying and Inspection
   - E. Inventory control
   - F. Vapor or visible sign of a discharge in the vicinity
   - G. Closure: see attached (explain)
   - H. Other: _____

7. Estimated number of gallons discharged: Unknown - 4 soil borings and temporary monitoring wells completed during assessment.

8. What part of storage system has leaked? (circle all that apply) A. Dispenser B. Pipe C. Fitting D. Tank E. Unknown

9. Type of regulated substance discharged (circle one)
   - A. leaded gasoline
   - B. unleaded gasoline
   - C. gasohol
   - D. vehicular diesel
   - F. aviation gas
   - F. jet fuel
   - L. used/waste oil
   - M. diesel
   - O. new/lube oil
   - V. hazardous substance includes pesticides, ammonia, chlorine and derivatives (write in name or Chemical Abstract Service CAS number)
   - Z. other (write in name)

10. Cause of leak. (circle all that apply)
   - A. Unkown
   - B. Split
   - C. Loose connection
   - D. Corrosion
   - E. Puncture
   - F. Installation failure
   - G. Spill
   - H. Overfill
   - I. Other (specify)

11. Type of financial responsibility. (circle one)
   - A. Third party insurance provided by the state insurance contractor
   - B. Self-insurance pursuant to Chapter 62-769.500 F.A.C.
   - C. Not applicable
   - D. None

12. **To the best of your knowledge and belief all information submitted on this form is true, accurate, and complete.**

Printed Name of Owner, Operator or Authorized Representative

Signature of Owner, Operator or authorized Representative

Attachment H
Certificate of Decontamination

DEPARTMENT OF THE NAVY
NAVY PUBLIC WORKS CENTER
310 JOHN TOWER ROAD
PENSACOLA, FLORIDA 32508-5303

CERTIFICATE OF DECONTAMINATION

It is hereby certified that the following Underground Storage Tanks located at the Animal Import Center, Fleming Key, Florida has been decontaminated by the Navy Public Works Center (PWC), Pensacola, Florida:

Tanks #1, #2, and #3

The tank was emptied, vapor freed, cleaned, and rendered unusable in accordance with requirements of API Standard 1604 and 2015 and as defined in 40 CFR 261.7.

Signature

Paul R Semmes, PE
Environmental Engineer
Title

12/17/98
Date

APPENDIX C

FIELD DATA FORMS

NAVAL AIR FIELD KEY WEST
KEY WEST, FLORIDA
SURVEY DATA
September 26, 2002

"BLACK BEAUTY SITE" - BOCA CHICA KEY

DESC	NORTH	EAST	ELEVATION		
			GROUND	CONC	TOC
BB MW-1	88,526.70	422,165.70	3.63	3.91	6.99
BB MW-2	88,330.72	422,145.73	3.59	3.80	6.94
BB MW-3	88,206.14	422,051.56	6.73	7.05	9.64
BB MW-4	88,134.18	422,034.53	0.98	1.21	3.41
BB MW-5	88,387.30	421,907.44	2.16	2.31	4.44
BB MW-6	88,635.61	422,058.47	2.16	2.40	4.85

"FLYING CLUB SITE" - BOCA CHICA KEY

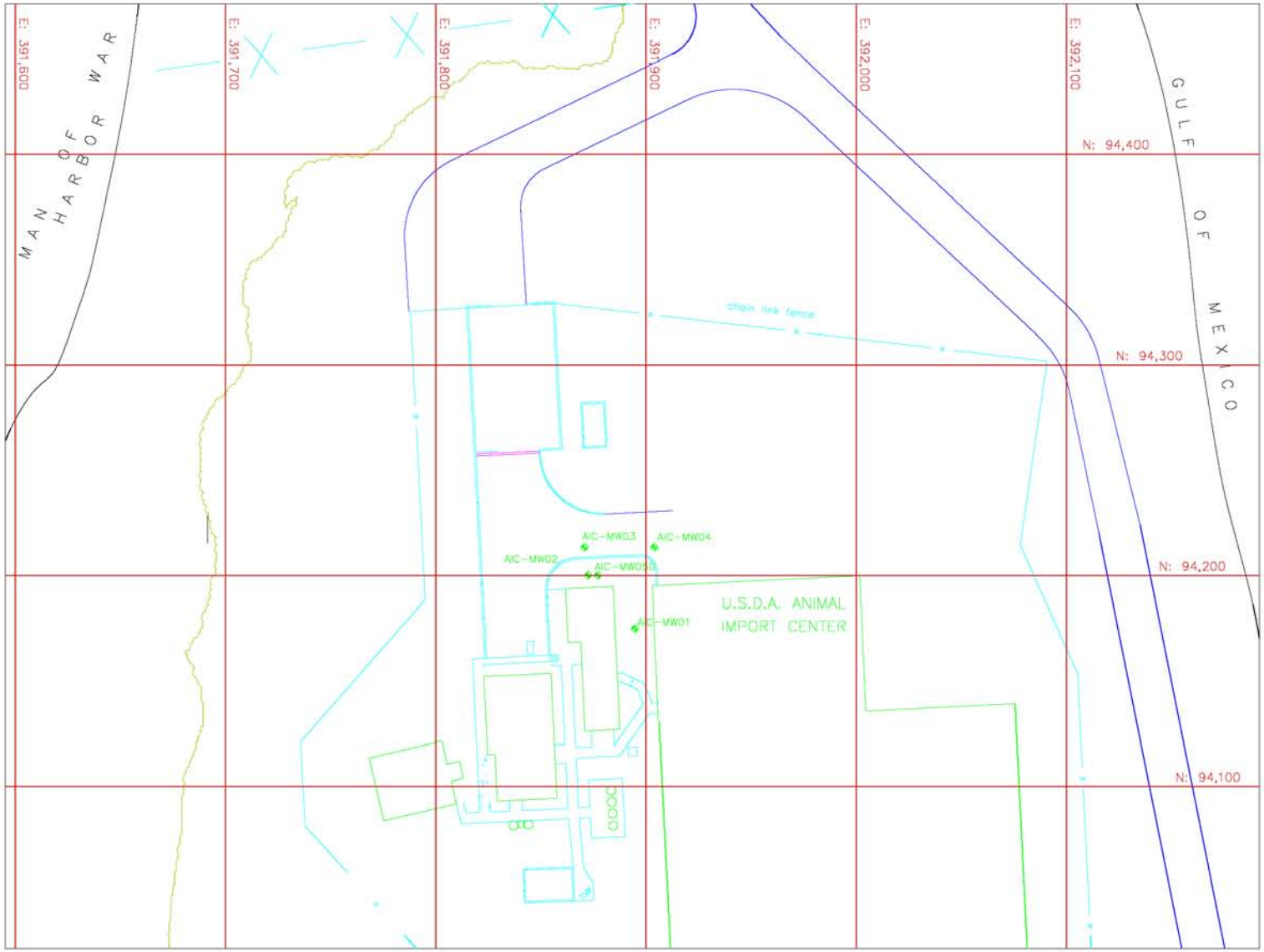
DESC	NORTH	EAST	ELEVATION		
			GROUND	CONC	TOC
FC MW-20R	90,778.73	427,832.48	5.52	5.61	5.07

"USDA ANIMAL IMPORT AREA SITE" - FLEMING KEY

DESC	NORTH	EAST	ELEVATION		
			GROUND	CONC	TOC
AIC MW-01	94,175.65	391,894.62	12.03	12.31	12.11
AIC MW-02	94,200.86	391,872.33	11.98	12.22	11.97
AIC MW-03	94,214.13	391,870.64	-	6.72	6.42
AIC MW-04	94,214.16	391,903.86	-	6.22	5.93
AIC MW-05D	94,200.78	391,877.01	11.84	12.07	11.83

HORIZONTAL DATUM IS FLORIDA STATE PLANE, EAST ZONE, NORTH AMERICAN DATUM OF 1983, 1990 ADJUSTMENT (NAD 83/90)

VERTICAL DATUM IS NATIONAL GEODETIC VERTICAL DATUM OF 1929 (NGVD 29)



LEGEND

MONITORING WELL

NOTES

1. THE PURPOSE OF THIS SURVEY IS TO SHOW THE HORIZONTAL LOCATIONS OF SELECTED GROUNDWATER MONITORING WELLS. OTHER FEATURES SHOWN
2. ARE TAKEN FROM DRAWINGS PROVIDED BY TETRA TECH NUS, AND ARE PROVIDED FOR INFORMATION ONLY. THIS INFORMATION IS UNCHECKED.
3. THE COORDINATE GRID SHOWN IS BASED ON THE FLORIDA STATE PLANE COORDINATE SYSTEM, EAST ZONE, NORTH AMERICAN DATUM OF 1983 (NAD 83).
4. THIS SURVEY MAP IS ACCOMPANIED BY A SURVEY REPORT. THIS DOCUMENT IS NOT COMPLETE UNLESS ACCOMPANIED BY THIS REPORT.
5. THIS DOCUMENT IS NOT VALID UNLESS IT BEARS THE RAISED SEAL AND ORIGINAL SIGNATURE OF A REGISTERED PROFESSIONAL SURVEYOR AND MAPPER OF DONALDSON, GARRETT AND ASSOCIATES, INC.

DATE OF SURVEY: SEPTEMBER 16, 2002.

50 0 50 100 150

GRAPHIC SCALE IN FEET

DATE: SEPT. 26, 2002	DWN.BY: JWN
SCALE: 1 = 50'	FIELDBOOK EDC/430
PROJECT NO. 2775-059-D1	PSM NO. 5778
DRAWING NO. 2415B-02-B	LB NO. 6552

DONALDSON, GARRETT & ASSOCIATES, INC.
MACON = CHARLOTTE
4875 RIVERSIDE DRIVE P.O. BOX 7308
MACON, GA 31210
(478)474-5350 fax: (478) 477-2534
http://www.dg-a.com

WELL LOCATION SURVEY

NAVAL AIR FACILITY KEY WEST "USDA ANIMAL IMPORT CENTER SITE"

PREPARED FOR

TETRA TECH NUS, INC.

FLEMING KEY MONROE COUNTY FLORIDA

THESE DOCUMENTS, AS INSTRUMENTS OF SERVICE, REMAIN THE PROPERTY OF DONALDSON, GARRETT & ASSOCIATES, INC. AND NO PART THEREOF MAY BE USED OR REPRODUCED IN ANY FORM WITHOUT WRITTEN PERMISSION.

Tetra Tech NUS, Inc.

BORING LOG

Page ___ of ___

PROJECT NAME: A/C
PROJECT NUMBER: 4260
DRILLING COMPANY: Wombat Environmental
DRILLING RIG: Geoprobe 54DT

BORING No.: SB-01
DATE: 7/16/02
GEOLOGIST: Gary Bungye
DRILLER:

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm): Sample	Sampler BZ	Borehole**	Driller BZ**
							Fill material, unsorted						
2							sand, pebbles + cobbles			Ø		Ø	
							poorly sorted, light						
4							brown - oolitic limestone			Ø		Ø	
5													
6										Ø		Ø	
8													
							Fill material			Ø		Ø	
10													

* When rock coring, enter rock brokeness.

** Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated reponse read.

Remarks:

Drilling Area Background (ppm): Ø

Tetra Tech NUS, Inc.

BORING LOG

PROJECT NAME: AIC
PROJECT NUMBER: 4260
DRILLING COMPANY: Wombat Ens.
DRILLING RIG: Geoprobe

BORING No.: SB-02
DATE: 7/16/02
GEOLOGIST: [illegible]
DRILLER: Paul

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm): Sample	Sampler BZ	Borehole**	Driller BZ**
Ø							fill type material						
							coarse sandy limestone			Ø		Ø	
							pebbles + cobbles						
4							↓			5		7	
5													
6							↓			8		9	
							metal debris, fill						
8							material			4		6	
							↓						
10										5		5	

* When rock coring, enter rock brokeness.

** Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated reponse read.

Remarks:

Drilling Area Background (ppm): Ø

Tetra Tech NUS, Inc.

BORING LOG

PROJECT NAME: AIC
PROJECT NUMBER: 4260
DRILLING COMPANY: Wonford
DRILLING RIG: Geoprobe

BORING No.: SB-03
DATE: 7/16/02
GEOLOGIST: GB
DRILLER: Pond

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm): Sample	Sampler BZ	Borehole**	Driller BZ**
							sandy limestone						
2							coarse grained,			0		0	
							pebbles + cobbles.						
							↓			0		0	
5													
							↓			0		0	
							oolitic limestone,			0		0	
							light brown, few			0		0	
							pebbles + cobbles, shell						
10							fragments.		water table.	0		0	
12							limestone - dark		strong petroleum	15		100	
							grey		odor.				

* When rock coring, enter rock brokeness.

** Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated reponse read.

Remarks:

Drilling Area Background (ppm): 0

Tetra Tech NUS, Inc.

BORING LOG

PROJECT NAME: A/C
PROJECT NUMBER: 4260
DRILLING COMPANY: Wombat
DRILLING RIG: Geoprobe

BORING No.: SB-04
DATE: 7/16/02
GEOLOGIST: CJB
DRILLER: Pond.

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm): Sample	Sampler BZ	Borehole**	Driller BZ**
							limestone, sandy						
2							coarse grained, light			Ø		Ø	
							brown						
4							↓			Ø		Ø	
6							concrete, debris			Ø		Ø	
							unsorted boulders +						
8							cobbles.			Ø		Ø	
							↓						
10							limestone, fill type			Ø		Ø	
							material						
12							↓			2		4	

* When rock coring, enter rock brokeness.

** Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated reponse read.

Remarks:

Drilling Area Background (ppm): 0

Tetra Tech NUS, Inc.

BORING LOG

PROJECT NAME: A/C
PROJECT NUMBER: 4260
DRILLING COMPANY: Wanbat
DRILLING RIG:

BORING No.: SB-05
DATE: 7/16/02
GEOLOGIST: GB
DRILLER: Paul

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm): Sample	Sampler BZ	Borehole**	Driller BZ**
							limestone +						
2							coarse sand, light			Ø		Ø	
							brown, cobbles +			Ø		Ø	
4							boulders, unsorted.			Ø		Ø	
5													
6										Ø		Ø	
8										Ø		Ø	
10										Ø		Ø	
							concrete.						

* When rock coring, enter rock brokeness.

** Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated reponse read.

Remarks:

Drilling Area Background (ppm): 0

Tetra Tech NUS, Inc.

BORING LOG

PROJECT NAME: AIC
PROJECT NUMBER: 4260
DRILLING COMPANY: Wombat Environmental
DRILLING RIG: Geoprobe 54DT

BORING No.: SB-06
DATE: 7/16/02
GEOLOGIST:
DRILLER: Paul Poorbaugh

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm): Sample	Sampler BZ	Borehole**	Driller BZ**
							sandy limestone						
2							pebbles, cobbles, boulders			0			
							unsorted, light						
4							brown			0			
5													
6										0			
							↓						
8							Debris - wood			0			

* When rock coring, enter rock brokeness.

** Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated reponse read.

Remarks:

Drilling Area Background (ppm): 0

Tetra Tech NUS, Inc.

BORING LOG

PROJECT NAME: AIC
PROJECT NUMBER: 4260
DRILLING COMPANY: Wambat
DRILLING RIG: Geoprobe

BORING No.: SB-07
DATE: 7/16/02
GEOLOGIST: GB
DRILLER: Paul

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm): Sample	Sampler BZ	Borehole**	Driller BZ**
							oolitic limestone						
2							light brown, mod.			Ø		Ø	
							consolidated,						
4							pieces of concrete			Ø		Ø	
							debris.						
6										Ø		Ø	
8										Ø		Ø	
10									water table	10		15	
12										535		500	

* When rock coring, enter rock brokeness.

** Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated reponse read.

Remarks:

Drilling Area Background (ppm): Ø

Tetra Tech NUS, Inc.

BORING LOG

PROJECT NAME: AIC - Fleming Key
PROJECT NUMBER: 4260
DRILLING COMPANY: Wombat Environmental
DRILLING RIG:

BORING No.: SB-08
DATE: 7/16/02
GEOLOGIST: GB + EH
DRILLER: Paul Poorbaugh

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm): Sample	Sampler BZ	Borehole**	Driller BZ**
							Organics, coarse material						
2							limestone, oolitic			0		0	
							moderately consolidated						
4							light brown			0		0	
							↓						
6										0		0	
8							oolitic limestone - moist	wet		0		0	
10							metal debris, brown b.		water table	0		0	
12							limestone, dark gray			15		20	
							oolitic - slight petroleum						
							odor.						

* When rock coring, enter rock brokeness.

** Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated reponse read.

Remarks:

Drilling Area Background (ppm): 2

Tetra Tech NUS, Inc.

BORING LOG

PROJECT NAME: AIC
PROJECT NUMBER: 4260
DRILLING COMPANY: Wombat
DRILLING RIG: Geoprobe

BORING No.: SB-09
DATE: 7/17
GEOLOGIST:
DRILLER: Paul

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm): Sample	Sampler BZ	Borehole**	Driller BZ**
							Fill material,						
2							coarse sand, pebbles			0			
							+ cobbles.						
4							Limestone, coarse			0			
							sand, cobbles +						
6							boulders, unsorted			0			
							↓						
8									moist.	5			
							Oolitic limestone,						
10							off-white, moderately		water table.	2			
							consolidate						
12							limestone, dark gray		petroleum odor	>1000			

* When rock coring, enter rock brokeness.

** Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated reponse read.

Remarks:

Drilling Area Background (ppm): 0

Tetra Tech NUS, Inc.

BORING LOG

PROJECT NAME: A/C
PROJECT NUMBER: 4260
DRILLING COMPANY: Wombat
DRILLING RIG: Geoprobe

BORING No.: SB-10
DATE: 7/16/02
GEOLOGIST: Gary B
DRILLER: Paul.

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	MATERIAL DESCRIPTION: Color	MATERIAL DESCRIPTION: Material Classification	USCS *	Remarks	PID/FID Reading (ppm): Sample	PID/FID Reading (ppm): Sampler BZ	PID/FID Reading (ppm): Borehole**	PID/FID Reading (ppm): Driller BZ**
							crushed limestone						
2							and fill material			Ø		Ø	
							unsolid						
4										Ø		Ø	
6										Ø		Ø	
							Oolitic limestone						
8							homogenous, porous		moist/wet	0		Ø	
							moderately consolidated						
10										Ø		Ø	
12							↓			Ø		Ø	

* When rock coring, enter rock brokeness.

** Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated reponse read.

Remarks:

Drilling Area Background (ppm): 0

Tetra Tech NUS, Inc.

BORING LOG

PROJECT NAME: A/C
PROJECT NUMBER: 4260
DRILLING COMPANY: Wombat
DRILLING RIG:

BORING No.: SB-11
DATE: 7/16/02
GEOLOGIST: GB
DRILLER: Paul

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm): Sample	Sampler BZ	Borehole**	Driller BZ**
							crushed limestone						
2							fill material			Ø		Ø	
4										Ø		Ø	
6							Oolitic limestone		moist	Ø		Ø	
							porous, off-white						
8							moderately consolidated			Ø		Ø	
										Ø		Ø	
10									water table				
12										23		35	

* When rock coring, enter rock brokeness.

** Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated reponse read.

Remarks:

Drilling Area Background (ppm): 9

Tetra Tech NUS, Inc.

BORING LOG

PROJECT NAME: AIC
PROJECT NUMBER: 4260
DRILLING COMPANY: Warhat
DRILLING RIG: Geoprobe

BORING No.: SB-12
DATE: 7/16/02
GEOLOGIST: SB
DRILLER: Paul.

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm): Sample	Sampler BZ	Borehole**	Driller BZ**
							crushed limestone						
2							unsorted material			Ø		Ø	
							few organics						
4							↓			Ø		Ø	
6							↓			Ø		Ø	
							Oolitic limestone						
8							porous, moderately			Ø		Ø	
							consolidated, off						
10							white to light brown			Ø		Ø	
							↓						
12										2		4	

* When rock coring, enter rock brokeness.

** Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated reponse read.

Remarks:

Drilling Area Background (ppm):

Tetra Tech NUS, Inc.

BORING LOG

PROJECT NAME: AIC
PROJECT NUMBER: 4260
DRILLING COMPANY: Wombat
DRILLING RIG: Geoprobe

BORING No.: SB-13
DATE: 7/16/02
GEOLOGIST: GB
DRILLER: Paul.

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm): Sample	Sampler BZ	Borehole**	Driller BZ**
							Asphalt, fill material						
							crushed limestone,			Ø		Ø	
							pebbles + cobbles, some debris						
							↓			Ø		Ø	
5									water table				

* When rock coring, enter rock brokeness.

** Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated reponse read.

Remarks:

Drilling Area Background (ppm): 0

Tetra Tech NUS, Inc.

BORING LOG

PROJECT NAME: AIC
PROJECT NUMBER: 4260
DRILLING COMPANY: Wright
DRILLING RIG: Geoprobe

BORING No.: SB-14
DATE: 7/16/02
GEOLOGIST: RB
DRILLER: Paul

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm): Sample	Sampler BZ	Borehole**	Driller BZ**
							Asphalt, fill material						
							brown-gray, pebbles			Ø		Ø	
							+ cobbles, debris-						
							wire + metal			Ø		Ø	
5							↓		water table				

* When rock coring, enter rock brokeness.

** Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated reponse read.

Remarks:

Drilling Area Background (ppm): 0

Tetra Tech NUS, Inc.

BORING LOG

Page ___ of ___

PROJECT NAME: AIC
PROJECT NUMBER: 4260.
DRILLING COMPANY: Wombat
DRILLING RIG: Geoprobe

BORING No.: SB-15
DATE: 7/16/02
GEOLOGIST: GB
DRILLER: Paul.

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm): Sample	Sampler BZ	Borehole**	Driller BZ**
							Asphalt, fill, brown						
							to light brown,			Ø		Ø	
							pebbles, cobbles, sand						
							some debris			4		4	
5							↓						

* When rock coring, enter rock brokeness.

** Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated reponse read.

Remarks:

Drilling Area Background (ppm): 0

Tetra Tech NUS, Inc.

BORING LOG

PROJECT NAME: A/C
PROJECT NUMBER: 4260
DRILLING COMPANY: Wombat
DRILLING RIG: Geoprobe

BORING No.: SB-16
DATE: 7/16/02
GEOLOGIST: GB
DRILLER: Paul.

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm): Sample	Sampler BZ	Borehole**	Driller BZ**
							Asphalt, fill material						
							sand, pebbles + cobbles			Ø		Ø	
							brown to light brown						
							unsorted			8		10	
5							↓						

* When rock coring, enter rock brokeness.

** Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated reponse read.

Remarks:

Drilling Area Background (ppm): 0

Tetra Tech NUS, Inc.

BORING LOG

PROJECT NAME: A/C
PROJECT NUMBER: 4260
DRILLING COMPANY: Wambat
DRILLING RIG: Geoprobe

BORING No.: SB17
DATE: 7/16/02
GEOLOGIST: GB
DRILLER: Paul

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm): Sample	Sampler BZ	Borehole**	Driller BZ**
							Asphalt, fill						
							material - unsorted			Ø		Ø	
							sand w/ pebbles +						
							cobbles, debris			Ø		Ø	
5							↓						

* When rock coring, enter rock brokeness.

** Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated reponse read.

Remarks:

Drilling Area Background (ppm): 0

Tetra Tech NUS, Inc.

BORING LOG

PROJECT NAME: AIC
PROJECT NUMBER: 4260
DRILLING COMPANY: Wombat
DRILLING RIG: Geoprobe

BORING No.: SB-18
DATE: 7/16/02
GEOLOGIST: GB
DRILLER: Paul

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm): Sample	Sampler BZ	Borehole**	Driller BZ**
							Asphalt, fill material						
							pebbles + cobbles			Ø		Ø	
							unsorted sand, some						
							debris			Ø		Ø	
5							↓						

* When rock coring, enter rock brokeness.

** Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated reponse read.

Remarks:

Drilling Area Background (ppm): 0

Tetra Tech NUS, Inc.

BORING LOG

PROJECT NAME: A/C
PROJECT NUMBER: 4260
DRILLING COMPANY: Wombat
DRILLING RIG: Geoprobe

BORING No.: SB-19
DATE: 7/16/02
GEOLOGIST: GB
DRILLER: Paul

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm): Sample	Sampler BZ	Borehole**	Driller BZ**
							Asphalt, fill						
							material, pebbles +			Ø		Ø	
							cobbles, sand + limestone						
							unsorted			Ø		Ø	
5							↓						

* When rock coring, enter rock brokeness.

** Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated reponse read.

Remarks:

Drilling Area Background (ppm): Ø

Tetra Tech NUS, Inc.

BORING LOG

PROJECT NAME: AIC
PROJECT NUMBER: 4260
DRILLING COMPANY: Wombat
DRILLING RIG: Geoprobe

BORING No.: SB-20
DATE: 7/16/02
GEOLOGIST: SB
DRILLER: Paul

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm): Sample	Sampler BZ	Borehole**	Driller BZ**
							Asphalt, fill						
							material, sandy lustic			0		0	
							w/ pebbles + cobbles						
							unsorted						
5							↓			0		0	

* When rock coring, enter rock brokeness.

** Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated reponse read.

Remarks:

Drilling Area Background (ppm): 0

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Page___ of___

Project Site Name: HSTAIC UST - NAF KW
Project No.: N4260, CTO 254

Sample ID No.: AIC-SB-10
Sample Location: AIC-SB-10
Sampled By: EM, GB
C.O.C. No.:

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

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

GRAB SAMPLE DATA:

	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date: 7/17/02 Time: 0900 Method: DPT, sleeve Monitor Reading (ppm): see boring log	0-2'	light brown	crushed limestone w/debris (wood)

COMPOSITE SAMPLE DATA:

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

EM

SAMPLE COLLECTION INFORMATION:

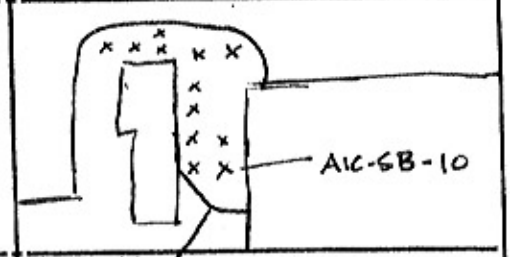
Analysis	Container Requirements	Collected	Other
VOCs	4x40mL (1 meth, 3DI)	✓	
PAHs	1 4oz	✓	
Lead	1 2oz	✓	
TOX (Total Organic Halogens)	1 4oz	✓	
FOC (Fraction Organic Carbon)	1 2oz	✓	
TPH	1 4oz	✓	

OBSERVATIONS / NOTES:

hit on PID - See boring log for level

- GPS - N24°35.422'
W081°47.720'

MAP:



Circle if Applicable:

MS/MSD	Duplicate ID No.:
—	—

Signature(s): E. McRae

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Page___ of___

Project Site Name: HSTAIC UST - NAF KW
Project No.: CTO 254, N4260

Sample ID No.: AIC-SB-15
Sample Location: AIC-SB-15
Sampled By: EM, GB
C.O.C. No.:

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

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

GRAB SAMPLE DATA:

	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date: 7/17/02 Time: 1500 Method: DPT, sleeve Monitor Reading (ppm): see log	0-2'	light brown	crushed oolitic limestone w/ debris

COMPOSITE SAMPLE DATA:

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:				
Monitor Readings (Range in ppm):				

EM

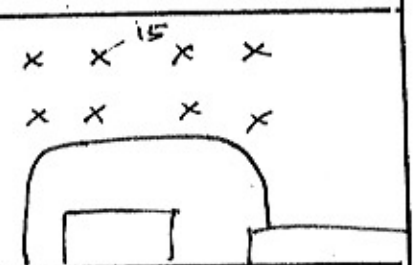
SAMPLE COLLECTION INFORMATION:

Analysis	Container Requirements	Collected	Other
VOC	4x40mL (1 meth, 3 DI)	✓	
PAH	1 4oz	✓	
Lead	1 2oz	✓	
TOX	1 4oz	✓	
TOC	1 2oz	✓	
TPH	1 4oz	✓	

OBSERVATIONS / NOTES:

Cut on PID
GPS - N 24° 35.433'
W081° 47.726'

MAP:



Circle if Applicable:

MS/MSD	Duplicate ID No.:
—	—

Signature(s): E. Mellen

Tetra Tech NUS, Inc.

SOIL & SEDIMENT SAMPLE LOG SHEET

Page___ of___

Project Site Name: HSTAIC UST - NAF KW
Project No.: CTO 254, N4260

Sample ID No.: AIC-SB-20
Sample Location: AIC-SB-20
Sampled By: EM, GB
C.O.C. No.:

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

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

GRAB SAMPLE DATA:

	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Date: 7/17/02 Time: 1730 Method: DPT, sleeve Monitor Reading (ppm): see log	0-2'	light brown	oolitic limestone

COMPOSITE SAMPLE DATA:

Date:	Time	Depth Interval	Color	Description (Sand, Silt, Clay, Moisture, etc.)
Method:			EM	
Monitor Readings (Range in ppm):				

SAMPLE COLLECTION INFORMATION:

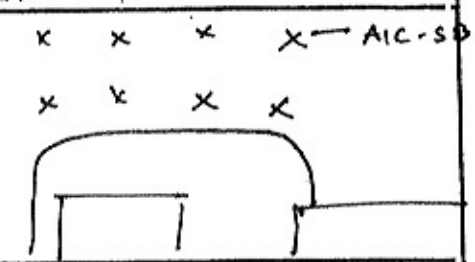
Analysis	Container Requirements	Collected	Other
VOC	4x40mL (1 meth, 3DI)	✓	
PAH	1 4oz	✓	
lead	1 2oz	✓	
TOX	1 4oz	✓	
EOC	1 2oz	✓	
TPH	1 4oz		

OBSERVATIONS / NOTES:

hit on PID

GPS - N24° 35.433'
W081° 47.720'

MAP:



Circle if Applicable:

MS/MSD	Duplicate ID No.:
—	—

Signature(s): Eg Mehta

BORING LOG

Tetra Tech NUS, Inc.

PROJECT NAME/No.: Animal Target Center
GEOLOGIST: Gary Brighton
DRILLER/Co.: U.S. Drilling
DRILLING RIG: CME

BORING NO.: MW-01
DATE START: 7/24/02
GEOLOGIST: GB
DRILLER: Kevin

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Time	Remarks	PID/FID Reading (ppm)
							Fill material, limestone				
							pebbles + cobbles, mostly				0
							organic debris				
							↓				0
5											
							Oolitic limestone				0
							porous, moderately				
							consolidated, off white				0
							to brown.				
10							↓			water table	0
							limestone increasing				
							clay + sand, poorly				
							consolidated, gray				
15											
							Oolitic limestone,				
							moderately mottled				
							gray				
							↓				
20											

* When rock coring, enter rock brokeness.

Background (ppm): 0

Remarks:

Converted to Well: Yes ✓ No _____ Well I.D. #: A/C-MW-01

BORING LOG

Tetra Tech NUS, Inc.

PROJECT NAME/No.: Animal Import Center
GEOLOGIST: Gary Bjorge
DRILLER/Co.: U.S. Drilling
DRILLING RIG: CME

BORING NO.: MW-02
DATE START: 7/23/02
GEOLOGIST: GB
DRILLER: Kevin

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Time	Remarks	PID/FID Reading (Ppm)
							Fill material, crush limestone + pebbles + cobbles				
											0
											0
5											
							Oolitic limestone porous, moderately consolidated, off-white to light brown.				0
											0
10											0
							Sandy limestone, minor clay, moderately consolidated - grey.				
15							Oolitic limestone increasing clay + fine sand, grey				
20											

* When rock coring, enter rock brokeness.

Background (ppm):

Remarks:

Converted to Well: Yes ✓ No _____ Well I.D. #: AIC - MW02

Tetra Tech NUS, Inc.

BORING LOG

PROJECT NAME: AIC
PROJECT NUMBER:
DRILLING COMPANY: U.S. Drilling
DRILLING RIG: CME

BORING No.: MW-03
DATE: 7/23/02
GEOLOGIST: KB
DRILLER: Kevin

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm): Sample	Sampler BZ	Borehole**	Driller BZ**
1							?fill material, crushed						
							limestone, pebbles			∅	∅	∅	
							cobbles, organic debris						
							unsorted			∅	∅	∅	
5							↓						
							oolitic limestone,						
							light brown, moderately						
							consolidate, very						
							porous						
10							↓						
12													

* When rock coring, enter rock brokeness.
** Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated reponse read.

Remarks:

Drilling Area Background (ppm): 0

Tetra Tech NUS, Inc.

BORING LOG

PROJECT NAME: AIC
PROJECT NUMBER:
DRILLING COMPANY: U.S. Drill
DRILLING RIG: CME

BORING No.: MW-04
DATE: 7/23/02
GEOLOGIST: GB
DRILLER: Kevin

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm): Sample	Sampler BZ	Borehole**	Driller BZ**
							Fill material, crushed						
							limestone, metal			Ø		Ø	
							debris, unsorted						
							pebbles + cobbles			Ø		Ø	
5							↓						
							Oolitic limestone,						
							white to light brown,						
							moderately consolidated						
							porous - veins, shell						
10							fragments						
							↓						
12													

* When rock coring, enter rock brokeness.

** Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated reponse read.

Remarks:

Drilling Area Background (ppm): 0

Tetra Tech NUS, Inc.

BORING LOG

PROJECT NAME: Animal Import Center
PROJECT NUMBER: Bony Bay
DRILLING COMPANY: US Drilling
DRILLING RIG: CME

BORING No.: MW-5D
DATE: 7/23/02
GEOLOGIST: GD
DRILLER: Kevin

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm): Sample	Sampler BZ	Borehole**	Driller BZ**
							fill material coralline						
							limestone, pebbles			0	0	0	
							cobbles, unsorted						
							some debris-metal,						
5							brown-grey			0	0	0	0
							↓						
										0	0	0	0
10										0	0	0	0
							Oolitic limestone						
							light brown, moderately						
							consolidated, very						
							porous-vugs, some						
15							shell fragments						
							↓						
20													
25													

* When rock coring, enter rock brokeness.

** Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated reponse read.

Remarks:

Drilling Area Background (ppm): 0

Tetra Tech NUS, Inc.

BORING LOG

PROJECT NAME: A/C
PROJECT NUMBER:
DRILLING COMPANY: US Drilling
DRILLING RIG: CME

BORING No.: MW-05D
DATE: 7/23/02
GEOLOGIST: Gary Burgess
DRILLER: Kevin

Sample No. and Type or RQD	Depth (Ft.) or Run No.	Blows / 6" or RQD (%)	Sample Recovery / Sample Length	Lithology Change (Depth/Ft.) or Screened Interval	MATERIAL DESCRIPTION: Soil Density/ Consistency or Rock Hardness	Color	Material Classification	USCS *	Remarks	PID/FID Reading (ppm): Sample	Sampler BZ	Borehole**	Driller BZ**
							Oolitic limestone						
							very clayey, fine						
							sand + silt mix						
							grey. poorly consolidated						
30													
35													

* When rock coring, enter rock brokeness.

** Include monitor reading in 6 foot intervals @ borehole. Increase reading frequency if elevated reponse read.

Remarks:

Drilling Area Background (ppm):

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: Animal Import Center
Project No.: 4260

[] Domestic Well Data
[X] Monitoring Well Data
[] Other Well Type:
[] QA Sample Type:

Sample ID No.: AIC-MW-05D-0702
Sample Location: AIC
Sampled By: SJ
C.O.C. No.:
Type of Sample:
[] Low Concentration
[] High Concentration

SAMPLING DATA:

	Color (Visual)	pH (S.U.)	S.C. (mS/cm)	Temp. (°C)	Turbidity (NTU)	DO (mg/l)	Salinity (%)	Other
Date: 7-24-02								
Time: 1145								
Method: Peristaltic								

PURGE DATA:

	Volume	pH	S.C.	Temp.	Turbidity	DO	Salinity	Other
Date: 7-24-02								
Method: Peristaltic	1	7.13	43.5	27.5	105	.52	2.82	
Monitor Reading (ppm):	2	7.01	2.84	27.3	57	.42	2.92	
Well Casing Diameter & Material	3	7.00	452	27.5	33	.41	2.94	
Type: 2" PVC	4	7.00	45.4	27.6	21	.59	2.95	
Total Well Depth (TD): 35.0	5	6.99	45.5	27.6	14	.71	2.96	
Static Water Level (WL): 10.48								
One Casing Volume(gal/L): 3.5								
Start Purge (hrs): 0730								
End Purge (hrs): 1130								
Total Purge Time (min): 240								
Total Vol. Purged (gal/L):								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
TPH	HCL		2
PAH	—		2
VOC	HCL		3
BDB	HCL		2
LEAD	HNO3		1

OBSERVATIONS / NOTES:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: Animal Impact Center
Project No.: 4260

[] Domestic Well Data
[] Monitoring Well Data
[] Other Well Type:
[] QA Sample Type:

Sample ID No.: AIC-MW-02-0702
Sample Location: AIC
Sampled By: SV
C.O.C. No.:
Type of Sample:
[] Low Concentration
[] High Concentration

SAMPLING DATA:

	Color (Visual)	pH (S.U.)	S.C. (mS/cm)	Temp. (°C)	Turbidity (NTU)	DO (mg/l)	Salinity (%)	Other
Date: 7-27-02								
Time: 1000								
Method: Peristaltic								

PURGE DATA:

	Volume	pH	S.C.	Temp.	Turbidity	DO	Salinity	Other
Date: 7-27-02								
Method: Peristaltic	1	6.72	6.14	27.8	43	.63	.33	
Monitor Reading (ppm):	2	6.81	8.55	27.7	126	.99	.41	
Well Casing Diameter & Material	3	6.66	8.22	27.4	49	.29	.45	
Type: 2" PVC	4	6.63	8.21	27.4	20	.17	.48	
Total Well Depth (TD): 20.0	5	6.70	8.12	27.4	20	.15	.70	
Static Water Level (WL): 10.62	6	6.64	8.22	27.4	9	.53	.75	
One Casing Volume(gal/L): 1.5								
Start Purge (hrs): 0740								
End Purge (hrs): 0940								
Total Purge Time (min): 120								
Total Vol. Purged (gal/L):								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
TPH	HCL		2
PAH	—		2
VOC	HCL		3
EPB	HCL		2
LEAD	HNO3		1
~~Methane~~	~~HCL~~		~~2~~
~~Ammonia~~	~~—~~		~~4~~

OBSERVATIONS / NOTES:

Circle If Applicable:

MS/MSD	Duplicate ID No.:
	AIC-DUP-02-0702

Signature(s):

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: Animal Import Center
Project No.: 4200

[] Domestic Well Data
[] Monitoring Well Data
[] Other Well Type:
[] QA Sample Type:

Sample ID No.: AIC-MW-04-0202
Sample Location: AIC
Sampled By: SV
C.O.C. No.:
Type of Sample:
[] Low Concentration
[] High Concentration

SAMPLING DATA:

Date: 7-24-02	Color (Visual)	pH (S.U.)	S.C. (mS/cm)	Temp. (°C)	Turbidity (NTU)	DO (mg/l)	Salinity (%)	Other
Time:								
Method: Peristaltic								

PURGE DATA:

Date: 7-27-02	Volume	pH	S.C.	Temp.	Turbidity	DO	Salinity	Other
Method: Peristaltic	1	6.71	30.5	28.6	280	.44	1.91	
Monitor Reading (ppm):	2	6.78	30.4	28.7	127	.43	1.89	
Well Casing Diameter & Material	3	6.79	30.6	28.7	22	.52	1.87	
Type: 2" PVC	4	6.81	31.7	28.7	4	.64	2.02	
Total Well Depth (TD): 12.0	5	6.79	32.8	28.5	0	.25	2.14	
Static Water Level (WL): 4.63								
One Casing Volume(gal/L): 1.17								
Start Purge (hrs): 0710								
End Purge (hrs):								
Total Purge Time (min):								
Total Vol. Purged (gal/L):								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
TPH	HCL		2
PAH	—		2
VOC	HCL		3
EDB	HCL		2
Lead	HNO3		1
Pb Total	HCL		2
Arsenic	—		1

OBSERVATIONS / NOTES:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: Animal Export Center
Project No.: 4260

[] Domestic Well Data
[] Monitoring Well Data
[] Other Well Type:
[] QA Sample Type:

Sample ID No.: AIC-MW03-07DC
Sample Location: AIC
Sampled By: SK
C.O.C. No.: —
Type of Sample:
[] Low Concentration
[] High Concentration

SAMPLING DATA:

	Color (Visual)	pH (S.U.)	S.C. (mS/cm)	Temp. (°C)	Turbidity (NTU)	DO (mg/l)	Salinity (%)	Other
Date: 7-27-07								
Time:								
Method: Peristaltic								

PURGE DATA:

	Volume	pH	S.C.	Temp.	Turbidity	DO	Salinity	Other
Date: 7-24-07								
Method: Peristaltic	1	6.66	14.8	29.3	30	1.14	.82	
Monitor Reading (ppm):	2	6.73	15.0	29.3	5	.69	.86	
Well Casing Diameter & Material	3	6.75	15.2	29.5	10	.20	.89	
Type: 2" PVC	4	6.72	15.6	29.7	35	.03	.91	
Total Well Depth (TD): 12.0	5	6.72	15.7	29.8	4	.08	.92	
Static Water Level (WL): 5.12	6	6.72	18.4	29.5	7	.09	1.1	
One Casing Volume(gal/L): 1.1								
Start Purge (hrs): 0700								
End Purge (hrs):								
Total Purge Time (min):								
Total Vol. Purged (gal/L):								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
TPH	HCL		2
PAH	—		2
VOC	HCL		3
EDB	HCL		2
LEAD	HNO3		1
METHANE	HCL		2
ANIONS	—		1

OBSERVATIONS / NOTES:

Circle if Applicable:

MS/MSD

Duplicate ID No.:

Signature(s):

1761

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Project Site Name: Animal Emport Center
Project No.: 4262

[] Domestic Well Data
[] Monitoring Well Data
[] Other Well Type:
[] QA Sample Type:

Sample ID No.: AIC-MW-01-0202
Sample Location: AIC
Sampled By: SV
C.O.C. No.: –
Type of Sample:
[] Low Concentration
[] High Concentration

SAMPLING DATA:

Date: 7-24-02	Color (Visual)	pH (S.U.)	S.C. (mS/cm)	Temp. (°C)	Turbidity (NTU)	DO (mg/l)	Salinity (%)	Other
Time:								
Method: Peristaltic								

PURGE DATA:

Date: 7-24-02	Volume	pH	S.C.	Temp.	Turbidity	DO	Salinity	Other
Method: Peristaltic		7.23	7.61	26.8	42	1.10	.40	
Monitor Reading (ppm):		7.22	2.85	26.8	10	3.75	.42	
Well Casing Diameter & Material		7.23	7.67	26.9	3	1.66	.45	
Type: 2" PVC		7.22	7.27	26.8	5	1.92	.39	
Total Well Depth (TD): ~~12.0~~ 20.20								
Static Water Level (WL): ~~10.85~~ 5.72								
One Casing Volume(gal/L): 1.45								
Start Purge (hrs): 0645								
End Purge (hrs):								
Total Purge Time (min):								
Total Vol. Purged (gal/L):								

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
TPH	HCL		2
PAH	–		2
VOC	HCL		3
EDB	HCL		2
LEAD	HNO3		1
Metbane	HCL		2
Anions	–		1

OBSERVATIONS / NOTES:

Circle if Applicable:

MS/MSD	Duplicate ID No.:

Signature(s):

DEP-SOP-001/01: Form FD 2000-24

State of Florida, Department of Environmental Protection
GROUNDWATER SAMPLING LOG

SITE NAME: YSTAIC		SITE LOCATION: NAF KW	
WELL NO: AIC-MW-01	SAMPLE ID: AIC-MW-01-0902		DATE: 9/18/02

PURGING DATA

WELL DIAMETER (in): 2"	TOTAL WELL DEPTH (ft): 19.92	STATIC DEPTH TO WATER (ft): 10.35	WELL CAPACITY (gal/ft): 0.16

1 WELL VOLUME (gal) = (TOTAL WELL DEPTH – DEPTH TO WATER) X WELL CAPACITY =

= (–) X = 1.53 gallons

PURGE METHOD: peristaltic	PURGE INITIATED AT: 1005	PURGE ENDED AT:	TOTAL VOL. PURGED (gal):

TIME	VOLUME PURGED (gal)	CUMUL. VOLUME PURGED (gal)	PURGE RATE (~~gpm~~) mL/min	DEPTH TO WATER (ft)	pH	TEMP. (°C)	COND. (µmhos)	DISSOLVED OXYGEN (mg/L)	TURBIDITY (NTUs)	COLOR	ODOR	Sal. %
1022	1.5	1.5	300	10.40	6.16	27.0	12.4	0.45	30	clear	sulfur	0.7
1029	0.5	2.0	"	10.38	6.10	26.9	11.5	0.10	11	"	"	0.6
1036	0.5	2.5	"	10.38	6.09	26.9	10.6	0.07	4	"	"	0.60
1043	0.5	3.0	"	10.38	6.09	26.9	10.2	0.05	2	"	"	0.5
1050	0.5	3.5	"	10.34	6.11	27.0	10.2	0.14	2	"	"	0.5

WELL CAPACITY (Gallons per Foot): 0.75" = 0.02; 1" = 0.04; 1.25" = 0.06; 2" = 0.16; 3" = 0.37; 4" = 0.65; 5" = 1.02; 6" = 1.47; 12" = 5.88

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION: Emily McRae / Tetra Tech NUS		SAMPLER(S) SIGNATURE(S): E. McRae	
SAMPLING METHOD(S): peristaltic / straw		SAMPLING INITIATED AT: 1052	SAMPLING ENDED AT: 1124
FIELD DECONTAMINATION: Y (N)	FIELD-FILTERED: Y (N)		DUPLICATE: Y (N)

SAMPLE CONTAINER SPECIFICATION			SAMPLE PRESERVATION			INTENDED ANALYSIS AND/OR METHOD
NO.	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOLUME ADDED IN FIELD (mL)	FINAL pH	
	AG	2x 1L	HCl	—	—	TRPH
	AG	2x1L	—	—	—	PAH
	CG	3x40 mL	HCl	—	—	PPL VOCs
	CG	2x40mL	HCl	—	—	EDB
	PE	1x250mL	HNO_3	—	—	Lead

REMARKS: purged 1.5 gal (1 well volume) prior to taking measurements (screen partially submerged. PID = 0.0 ppm Fe^{2+} = 0.13 mg/L

MATERIAL CODES: AG = AMBER GLASS; CG = CLEAR GLASS; PE = POLYETHYLENE; O = OTHER (SPECIFY)

NOTE: The above do not constitute all of the information required by Chapter 62-160, F.A.C.

DEP-SOP-001/01: Form FD 2000-24

State of Florida, Department of Environmental Protection
GROUNDWATER SAMPLING LOG

SITE NAME: IISTAIC		SITE LOCATION: NAF Key West	
WELL NO: AIC-MW-02	SAMPLE ID: AIC-MW-02-0902	DATE: 09/17/02	

PURGING DATA

WELL DIAMETER (in): 2"	TOTAL WELL DEPTH (ft): 19.65	STATIC DEPTH TO WATER (ft): 10.23	WELL CAPACITY (gal/ft): 0.16

1 WELL VOLUME (gal) = (TOTAL WELL DEPTH – DEPTH TO WATER) X WELL CAPACITY =

= (–)X = 1.5 gallons

PURGE METHOD: peristaltic	PURGE INITIATED AT: 1400	PURGE ENDED AT:	TOTAL VOL. PURGED (gal):

TIME	VOLUME PURGED (gal)	CUMUL. VOLUME PURGED (gal)	PURGE RATE ~~(gpm)~~ mL/min	DEPTH TO WATER (ft)	pH	TEMP. (°C)	COND. (µmhos)	DISSOLVED OXYGEN (mg/L)	TURBIDITY (NTUs)	COLOR	ODOR	S. %
1408	0.3	0.3	≈200	10.31	6.29	28.3	7.94	0.21	0	clear	sulfur	0.4
1415	0.7	1.0		10.31	6.22	28.2	6.10	0.20	0	"	"	0.3
1422	0.5	1.5		10.31	6.22	28.2	5.94	0.23	0			0.31
1429	0.5	2.0		10.32	6.21	28.3	6.04	0.25	0			0.12

WELL CAPACITY (Gallons per Foot): 0.75" = 0.02; 1" = 0.04; 1.25" = 0.06; 2" = 0.16; 3" = 0.37; 4" = 0.65; 5" = 1.02; 6" = 1.47; 12" = 5.88

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION: Emily McRee/Tetra Tech NUS		SAMPLER(S) SIGNATURE(S): E. McRee	
SAMPLING METHOD(S): peristaltic		SAMPLING INITIATED AT: 1430	SAMPLING ENDED AT: 1530
FIELD DECONTAMINATION: Y (N)	FIELD-FILTERED: Y (N)		DUPLICATE: (Y) N

SAMPLE CONTAINER SPECIFICATION			SAMPLE PRESERVATION			INTENDED ANALYSIS AND/OR METHOD
NO.	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOLUME ADDED IN FIELD (mL)	FINAL pH	
	AG	2×1L	HCl	—	—	TRPH
	AG	2×1L	—	—	—	PAH
	PE	1×250mL	HNO_3	—	—	Lead
	CG	2×40mL	HCl	—	—	EDB
	CG	3×40mL	HCl	—	—	PPL VOCs

REMARKS: Dup - ~~Dup~~ Dup-01-0902, Tubing + pump vol ≈ 200 mL Fe⁺² = 0.0 mg/L PID = 0.0 ppm

MATERIAL CODES: AG = AMBER GLASS; CG = CLEAR GLASS; PE = POLYETHYLENE; O = OTHER (SPECIFY)

NOTE: The above do not constitute all of the information required by Chapter 62-160, F.A.C.

- Some of the same black stuff from MW-03 – no odor, no reading on PID

DEP-SOP-001/01: Form FD 2000-24

State of Florida, Department of Environmental Protection
GROUNDWATER SAMPLING LOG

SITE NAME: HSTMC site		SITE LOCATION: NAF KW	
WELL NO: A1C-MW-03	SAMPLE ID: A1C-MW-03-0902		DATE: 9/17/02

PURGING DATA

WELL DIAMETER (in): 2"	TOTAL WELL DEPTH (ft): 7.91	STATIC DEPTH TO WATER (ft): 4.74	WELL CAPACITY (gal/ft): 0.17

1 WELL VOLUME (gal) = (TOTAL WELL DEPTH – DEPTH TO WATER) X WELL CAPACITY =

= (–) X = 0.54 gallons

PURGE METHOD: peristaltic	PURGE INITIATED AT: 1030	PURGE ENDED AT:	TOTAL VOL. PURGED (gal):

TIME	VOLUME PURGED (gal)	CUMUL. VOLUME PURGED (gal)	PURGE RATE (gpm)	DEPTH TO WATER (ft)	pH	TEMP. (°C)	COND. (µmhos)	DISSOLVED OXYGEN (mg/L)	TURBIDITY (NTUs)	COLOR	ODOR	sal
1047	0.6	0.6	~300	4.72	6.11	29.5	19.0	0.05	0	black	sulfur	1.12
1052	1.0	1.6	~300	4.72	6.10	29.5	18.0	0.03	0	"	"	1.07
1058	1.0	2.5	"	4.72	6.09	29.5	17.8	0.03	0	"	"	1.05
1105	0.8	3.3	"	4.72	6.10	29.5	17.8	0.03	0			1.05

WELL CAPACITY (Gallons per Foot): 0.75" = 0.02; 1" = 0.04; 1.25" = 0.06; 2" = 0.16; 3" = 0.37; 4" = 0.65; 5" = 1.02; 6" = 1.47; 12" = 5.88

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION: Emily McRee / TetraTech NUS		SAMPLER(S) SIGNATURE(S): Em McRee	
SAMPLING METHOD(S): peristaltic		SAMPLING INITIATED AT: 1100	SAMPLING ENDED AT:
FIELD DECONTAMINATION: Y (N)	FIELD-FILTERED: Y (N)		DUPLICATE: Y (N)

SAMPLE CONTAINER SPECIFICATION			SAMPLE PRESERVATION			INTENDED ANALYSIS AND/OR METHOD
NO.	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOLUME ADDED IN FIELD (mL)	FINAL pH	
	AG	2x1L	HCl	—	—	TRPH
	AG	2x1L	—	—	—	PAH
	PE	1x250mL	HNO_3	—	—	Lead
	CG	3x40mL	HCl	—	—	PPL VOCs
	CG	3x40mL	HCl	—	—	EDB
	CG	2x40mL	HCl	—	—	methane
	PE	1x250mL	—	—	—	Anions

REMARKS: PID - 0.0 ppm, screen partially submerged
- well is only 7.91'?? - was installed to 10' supposedly

MATERIAL CODES: AG = AMBER GLASS; CG = CLEAR GLASS; PE = POLYETHYLENE; O = OTHER (SPECIFY)

NOTE: The above do not constitute all of the information required by Chapter 62-160, F.A.C.

Note: previous tubing was covered in black substance – no odor, 0.0 PID reading, possibly bio growth

Ferrous Iron = 0.06 mg/L

State of Florida, Department of Environmental Protection
GROUNDWATER SAMPLING LOG

SITE NAME: Harry S. Truman Animal Import		SITE LOCATION: NAF KW	
WELL NO: AIC-MW-04	SAMPLE ID: AIC-MW-04-0902		DATE: 9/17/02

PURGING DATA

WELL DIAMETER (in): 2"	TOTAL WELL DEPTH (ft): 11.79	STATIC DEPTH TO WATER (ft): 4.31'	WELL CAPACITY (gal/ft): 0.17

1 WELL VOLUME (gal) = (TOTAL WELL DEPTH – DEPTH TO WATER) X WELL CAPACITY =

= (–) X = 1.27 gallons

PURGE METHOD: peristaltic	PURGE INITIATED AT: 0855	PURGE ENDED AT: 0932	TOTAL VOL. PURGED (gal): 3.0 gal

TIME	VOLUME PURGED (gal)	CUMUL. VOLUME PURGED (gal)	PURGE RATE (~~gpm~~) ml/min	DEPTH TO WATER (ft)	pH	TEMP. (°C)	COND. (µmhos)	DISSOLVED OXYGEN (mg/L)	TURBIDITY (NTUs)	COLOR	ODOR	Sal
0914	1.3	1.3	~300	4.28	6.19	28.6	39.2	0.24	0	clear	none	2.4
0921	0.7	2.0	"	4.31	6.18	28.6	38.3	0.20	0	"		2.4
0926	0.5	2.5	"	4.30	6.18	28.6	38.5	0.11	0	"	none	2.46
0930	0.5	3.0	"	4.3	6.18	28.6	38.7	0.11	0			2.41

WELL CAPACITY (Gallons per Foot): 0.75" = 0.02; 1" = 0.04; 1.25" = 0.06; 2" = 0.16; 3" = 0.37; 4" = 0.65; 5" = 1.02; 6" = 1.47; 12" = 5.88

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION: Emily McRee / Tetra Tech NUS	SAMPLER(S) SIGNATURE(S): Em McRee	
SAMPLING METHOD(S): peristaltic	SAMPLING INITIATED AT: 0932	SAMPLING ENDED AT: 1000
FIELD DECONTAMINATION: Y (N)	FIELD-FILTERED: Y (N)	DUPLICATE: Y (N)

SAMPLE CONTAINER SPECIFICATION			SAMPLE PRESERVATION			INTENDED ANALYSIS AND/OR METHOD
NO.	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOLUME ADDED IN FIELD (mL)	FINAL pH	
	AG	2×1L	HCl	—	—	TRPH
	AG	2×1L	—	—	—	PAH
	CG	3×40mL	HCl	—	—	PPL VOC
	CG	2×40mL	HCl	—	—	EDB
	PE	1×250mL	HNO_3	—	—	Lead

REMARKS: well screen partially submerged – purged 1 vol before taking measurements Ferrous Iron ~0.05 mg/L (Hach Kit)

MATERIAL CODES: AG = AMBER GLASS; CG = CLEAR GLASS; PE = POLYETHYLENE; O = OTHER (SPECIFY)

NOTE: The above do not constitute all of the information required by Chapter 62-160, F.A.C.

PID = 0.0 ppm

DEP-SOP-001/01: Form FD 2000-24

State of Florida, Department of Environmental Protection
GROUNDWATER SAMPLING LOG

SITE NAME: HSTAIC	SITE LOCATION: NAF KW
WELL NO: AIC-MW-05D	SAMPLE ID: AIC-MW-05D-0902	DATE: 9/18/02

PURGING DATA

WELL DIAMETER (in):	TOTAL WELL DEPTH (ft): 34.41'	STATIC DEPTH TO WATER (ft): 9.87'	WELL CAPACITY (gal/ft): 0.16

1 WELL VOLUME (gal) = (TOTAL WELL DEPTH – DEPTH TO WATER) X WELL CAPACITY =

= (–) X = 3.8 gallons

PURGE METHOD: peristaltic	PURGE INITIATED AT: 0810	PURGE ENDED AT: 0920	TOTAL VOL. PURGED (gal): 3.4 gal

TIME	VOLUME PURGED (gal)	CUMUL. VOLUME PURGED (gal)	PURGE RATE (~~gpm~~ ml/min)	DEPTH TO WATER (ft)	pH	TEMP. (°C)	COND. (µmhos)	DISSOLVED OXYGEN (mg/L)	TURBIDITY (NTUs)	COLOR	ODOR	Sal %
0825	0.4	0.4	300	9.82	6.37	27.2	44.8	0.19	209	cloudy	sulfur	2.9
0832	0.4	0.8	"	9.90	6.38	27.2	44.8	0.45	115	"	"	2.9
0840	0.5	1.3	"	9.82	6.40	27.2	44.8	0.50	60	"	"	2.9
0847	0.5	1.8		9.81	6.35	27.2	44.9	0.13	38	"	"	2.9
0855	0.5	2.3	200	9.79	6.31	27.2	45.1	0.08	29		"	2.9
0902	0.35	2.65	200	9.73	6.29	27.2	45.3	0.08	21	clear	"	2.9
~~[illegible]~~ 0909	0.35	3.0	~~200~~	9.72	6.27	27.2	45.4	0.08	18	clear	"	2.9
~~[illegible]~~ 0918	0.35	3.4	200	9.70	6.27	27.3	45.8	0.08	16	clear	"	2.9

WELL CAPACITY (Gallons per Foot): 0.75" = 0.02; 1" = 0.04; 1.25" = 0.06; 2" = 0.16; 3" = 0.37; 4" = 0.65; 5" = 1.02; 6" = 1.47; 12" = 5.88

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION: Emily McRee / Tetra Tech NUS	SAMPLER(S) SIGNATURE(S): Em McRee
SAMPLING METHOD(S): peristaltic pump	SAMPLING INITIATED AT: 0926	SAMPLING ENDED AT: 0953
FIELD DECONTAMINATION: Y (N)	FIELD-FILTERED: Y (N)	DUPLICATE: Y (N)

SAMPLE CONTAINER SPECIFICATION			SAMPLE PRESERVATION			INTENDED ANALYSIS AND/OR METHOD
NO.	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOLUME ADDED IN FIELD (mL)	FINAL pH	
	AG	2x 1L	HCl	—	—	TRPH
	AG	2x 1L	—	—	—	PAH
	CG	3x40mL	HCl	—	—	PPL VOCs
	CG	2x40mL	HCl	—	—	EDB
	CG	2x40mL	HCl	—	—	Methane
	PE	1x250mL	HNO_3	—	—	Lead
	PE	1x250mL	[redacted]	—	—	Anions

REMARKS: 1 volume of tubing ≈ .35 gal = 1350 mL 3 x .35 gal = 1.05 gallons
PID – 0.0 ppm Fe^{2+} = 0.01 mg/L

MATERIAL CODES: AG = AMBER GLASS; CG = CLEAR GLASS; PE = POLYETHYLENE; O = OTHER (SPECIFY)

NOTE: The above do not constitute all of the information required by Chapter 62-160, F.A.C.

Tetra Tech NUS, Inc.

GROUNDWATER SAMPLE LOG SHEET

Page___ of ___

Project Site Name: Animal Import Center - NASKW
Project No.: CTO 254

[ ] Domestic Well Data
[X] Monitoring Well Data
[ ] Other Well Type:
[ ] QA Sample Type:

Sample ID No.: AIC-MW-05D-0503
Sample Location: AIC-MW-05D
Sampled By: EM/GB
C.O.C. No.: 3840
Type of Sample:
[X] Low Concentration
[ ] High Concentration

SAMPLING DATA:

Date: 5/6/03	Color (Visual)	pH (S.U.)	S.C. (mS/cm)	Temp. (°C)	Turbidity (NTU)	DO (mg/l)	Salinity (%)	Other
Time: 1005								
Method: peristaltic	clear	7.12	45.7	27.4	33	0.55	3.0	

PURGE DATA:

Date: 5/6/03	Volume (gal)	pH	S.C.	Temp.	Turbidity	DO	Salinity	Other	Time
Method: peristaltic	0.5	7.12	45.1	27.2	56	0.71	29		0938
Monitor Reading (ppm): 0.0	0.75	7.13	45.4	27.1	40	0.61	30		0941
Well Casing Diameter & Material	1.0	7.14	45.4	27.3	37	0.56	3.0		0945
Type: 2" PVC	1.5	7.14	45.6	27.3	36	0.54	3.0		0950
Total Well Depth (TD): 34.44	1.75	7.13	45.6	27.4	38	0.57	3.0		0953
Static Water Level (WL): 10.45	2.5	7.12	45.7	27.4	35	0.55	3.0		1000
One Casing Volume(gal/L): 4.07									
Start Purge (hrs): 0930									
End Purge (hrs): 1000									
Total Purge Time (min): 30									
Total Vol. Purged (gal/L): 2.5 gal									

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
VOCs - bromodichloromethane + chlorodibromomethane	HCl	3x40mL	✓

OBSERVATIONS / NOTES:

TDS - 28
ORP - -303

Purging rate - started at 300 mL/min - lowered to approximately 150 mL/min
Drawdown ≈ 0.1 ft

Circle if Applicable:

MS/MSD

Duplicate ID No.:

Signature(s): E. McRae

APPENDIX D

LABORATORY ANALYTICAL REPORTS

KB LABS, INC.
6821 Southwest Archer Road
Gainesville, Florida 32608
***Telephone* (352) 367-0073**
***Fax* (352) 367-0074**
Email: kblabs@gator.net

Mobile Laboratory Services

July 29, 2002

Chuck Bryan
Tetra Tech NUS
900 Trail Ridge Road
Aiken, SC 29803

RE: NAF Key West (CTO 254) - Final Data Report
Key West, Florida
KB Labs Project # 02-061-1

Dear Mr. Bryan:

Enclosed is the final report of the on-site analysis performed by KB Labs, Inc. at the above referenced site. Samples were collected and analyzed on July 16-17, 2002. Included are a brief project narrative, tables listing quality control results, final analytical results, and sample chain-of-custody form. This information will also be sent electronically.

KB Labs is approved as a mobile laboratory for volatiles analyses and operates under an FDEP approved Comprehensive Quality Assurance Plan (CompQAP #980029 Revision 3). Unless otherwise stated in our CompQAP under method modifications, all data for the site referenced above were determined in accordance with published procedures under Test Methods for Evaluating Solid Waste (EPA SW-846, Update III Revised May 1997). Unless otherwise indicated on the quality control narrative accompanying the data report, the quality assurance and quality control procedures performed in conjunction with analysis of groundwater samples demonstrated that the reported data met our CompQAP requirements for accuracy and precision.

If you have any questions, please do not hesitate to call me or Kelly Bergdoll, President of KB Labs, at (352) 367-0073.

Sincerely,

KB Labs, Inc.

Todd Romero
Director of Operations

"KB Labs is a small, woman-owned business enterprise."

KB LABS, INC.

PROJECT NARRATIVE

Client:	Tetra Tech NUS (TtNUS)	**Driller/Sampler:**	TtNUS	**Analyst:**	Mark Mathews, Maria Mathews
Site:	NAF Key West (CTO 254), Key West, FL	**KB Labs Project Manager:**	Kelly Bergdoll	**KB Labs Project #:**	02-061-I
Onsite Dates:	07/16/02-07/17/02	**Client Project Manager:**	Chuck Bryan	**Matrix:**	Water

Project Scope

From July 16, 2002, to July 17, 2002, a total of fifteen (15) water samples were collected at the NAF Key West (CTO 254) site in Key West, FL. The samples were analyzed in the KB Labs mobile facility. The samples were analyzed for diesel and for the 8100 PAH list: naphthalene, acenaphthalene, acenaphthene, fluorene, phenanthrene, anthracene, fluoranthene, pyrene, benzo(a)anthracene, chrysene, benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(a)pyrene, dibenzo(a,h)anthracene, indeno(1,2,3-cd)pyrene, and benzo(ghi)perylene.

Analytical Procedure

All water samples were extracted using SW846 Method 3535. The semi-volatile compounds are extracted from a two hundred milliliter (200 mL) aliquot of sample. Solid phase extraction is used, and the semi-volatile compounds are collected in hexane.

All samples were analyzed using SW846 Method 8015 (DRO) and SW846 Method 8100 (PAH). The extracted samples were analyzed on a GC with an FID. The individual analyte responses are measured against corresponding analyte calibration standard responses.

Analytical Results

Laboratory results were provided to the client on an as-completed or next-day basis. Final results of the on-site analyses are provided in a hardcopy report. The data produced and reported in the field has been reviewed and approved for this final report by the Director of Operations for KB Labs.

Quality Control (QC) Data

Surrogate Recoveries – Tables 1 and 2 list the daily analytical sequence and percent recovery results for the surrogate compound (2-fluorobiphenyl). This surrogate compound was added to each analysis in order to continually monitor general method performance.

MS/MSD/LCS/ICV Recoveries – Table 3 lists the percent recovery results for matrix spike samples, laboratory control spikes, and initial calibration verifications. A known amount of each target compound was added to selected field samples and to laboratory reagent water in order to

monitor the performance of each of the target compounds in the actual matrix and in laboratory reagent water.

Method Blanks – Daily analysis of laboratory reagent water samples was performed in order to monitor the cleanliness of the analytical system.

Signature: _____

Title: Director of Operations

Date: 7/29/02

KB LABS, INC.

Table 1: 8015 Analytical Run Sequence/Surrogate Percent Recoveries

Client: Tetra Tech NUS (TtNUS)	**Driller/Sampler**: TtNUS	**Analyst:** Mark Mathews, Maria Mathews
Site: NAF Key West (CTO 254), Key West, FL	**KB Labs Project Manager**: Kelly Bergdoll	**KB Labs Project No:** 02-061-1
On-site Dates: 7/16/02-7/17/02	**Client Project Manager**: Chuck Bryan	**Matrix:** Water

Sample ID	Date of Analysis	Surrogate % Recovery	Surrogate Control Limits: 70%(LCL) to 130%(UCL)
		S1*	S1*
Diesel 400	07/16/02	89	Pass
Diesel ICV1 100	07/16/02	NA	NA
MB 7/16/02	07/16/02	NA	NA
LCS2 7/16/02	07/16/02	57	< LCL
AIC-GS-03	07/16/02	81	Pass
Diesel 20	07/16/02	83	Pass
AIC-GS-07	07/16/02	80	Pass
Diesel 40	07/16/02	93	Pass
Diesel 100	07/16/02	92	Pass
Diesel 200	07/16/02	114	Pass
AIC-GS-08	07/16/02	97	Pass
LCS4 7/16/02	07/16/02	96	Pass
AIC-GS-03 ms	07/16/02	92	Pass
AIC-GS-07 ms	07/16/02	113	Pass
Diesel 400	07/16/02	98	Pass
Diesel 20	07/17/02	70	Pass
Diesel 40	07/17/02	82	Pass
Diesel 100	07/17/02	94	Pass
Diesel 200	07/17/02	96	Pass
Diesel 400	07/17/02	84	Pass
AIC-GS-09	07/17/02	86	Pass
AIC-GS-10	07/17/02	87	Pass
AIC-GS-11	07/17/02	84	Pass
MB 7/17/02	07/17/02	92	Pass
AIC-GS-12	07/17/02	78	Pass
AIC-GS-13	07/17/02	84	Pass
AIC-GS-14	07/17/02	86	Pass
LCS2 7/17/02	07/17/02	87	Pass
AIC-GS-19	07/17/02	68	< LCL
AIC-GS-20	07/17/02	101	Pass
AIC-GS-15	07/17/02	79	Pass
AIC-GS-16	07/17/02	93	Pass
AIC-GS-17	07/17/02	82	Pass
AIC-GS-18	07/17/02	71	Pass

***Surrogate Compounds:**
S1 = 2-Fluorobiphenyl

KB LABS, INC.

Table 1: 8015 Analytical Run Sequence/Surrogate Percent Recoveries

Client: Tetra Tech NUS (TtNUS)	**Driller/Sampler**: TtNUS	**Analyst:** Mark Mathews, Maria Mathews
Site: NAF Key West (CTO 254), Key West, FL	**KB Labs Project Manager**: Kelly Bergdoll	**KB Labs Project No:** 02-061-1
On-site Dates: 7/16/02-7/17/02	**Client Project Manager**: Chuck Bryan	**Matrix:** Water

Sample ID	Date of Analysis	Surrogate % Recovery	Surrogate Control Limits: 70%(LCL) to 130%(UCL)
		S1*	S1*
Diesel ICV2 100	07/17/02	NA	NA
LCS4 7/17/02	07/17/02	77	Pass
Diesel 20	07/17/02	52	< LCL
Diesel 100	07/17/02	102	Pass
Comments:	Although some surrogate recoveries may be out of the control percent recovery range (70% to 130%), other supporting QC, such as matrix spikes, matrix spike duplicates, method blanks, and laboratory control samples, are performed by KB Labs to further validate reported data.		

Signature: Todd Romano

Title: Director of Operations

Date: 7/29/02

***Surrogate Compounds:**
S1 = 2-Fluorobiphenyl

KB LABS, INC.

Table 2: 8100 Analytical Run Sequence/Surrogate Percent Recoveries

Client: Tetra Tech NUS (TtNUS)	**Driller/Sampler**: TtNUS	**Analyst:** Mark Mathews, Maria Mathews
Site: NAF Key West (CTO 254), Key West, FL	**KB Labs Project Manager**: Kelly Bergdoll	**KB Labs Project No:** 02-061-1
On-site Dates: 7/16/02-7/17/02	**Client Project Manager**: Chuck Bryan	**Matrix:** Water

Sample ID	Date of Analysis	Surrogate % Recovery	Surrogate Control Limits: 70%(LCL) to 130%(UCL)
		S1*	S1*
PAH 20	07/16/02	93	Pass
PAH 20	07/16/02	98	Pass
PAH ICV1 10	07/17/02	NA	NA
MB 7/16/02	07/16/02	78	Pass
LCS1 7/16/02	07/16/02	63	< LCL
PAH 1.0	07/16/02	103	Pass
PAH 10	07/16/02	95	Pass
AIC-GS-03	07/16/02	84	Pass
AIC-GS-07	07/16/02	85	Pass
AIC-GS-08	07/16/02	99	Pass
LCS3 7/16/02	07/16/02	107	Pass
PAH 0.5	07/17/02	120	Pass
PAH 2.0	07/17/02	117	Pass
PAH 4.0	07/17/02	104	Pass
PAH 1	07/17/02	98	Pass
PAH 2	07/17/02	123	Pass
PAH 10	07/17/02	92	Pass
PAH 20	07/17/02	102	Pass
PAH 40	07/17/02	97	Pass
AIC-GS-09	07/17/02	89	Pass
AIC-GS-10	07/17/02	90	Pass
AIC-GS-11	07/17/02	87	Pass
MB 7/17/02	07/17/02	94	Pass
AIC-GS-12	07/17/02	83	Pass
AIC-GS-13	07/17/02	88	Pass
AIC-GS-14	07/17/02	89	Pass
LCS1 7/17/02	07/17/02	96	Pass
LCS1 7/17/02	07/17/02	83	Pass
AIC-GS-19	07/17/02	75	Pass
AIC-GS-20	07/17/02	101	Pass
AIC-GS-15	07/17/02	84	Pass
AIC-GS-16	07/17/02	95	Pass
AIC-GS-17	07/17/02	86	Pass
AIC-GS-18	07/17/02	77	Pass

***Surrogate Compounds:**
S1 = 2-Fluorobiphenyl

KB LABS, INC.

Table 2: 8100 Analytical Run Sequence/Surrogate Percent Recoveries

Client: Tetra Tech NUS (TtNUS)	**Driller/Sampler**: TtNUS	**Analyst:** Mark Mathews, Maria Mathews
Site: NAF Key West (CTO 254), Key West, FL	**KB Labs Project Manager**: Kelly Bergdoll	**KB Labs Project No:** 02-061-1
On-site Dates: 7/16/02-7/17/02	**Client Project Manager**: Chuck Bryan	**Matrix:** Water

Sample ID	Date of Analysis	Surrogate % Recovery	Surrogate Control Limits: 70%(LCL) to 130%(UCL)
		S1*	S1*
AIC-GS-10 ms	07/17/02	75	Pass
AIC-GS-10 msd	07/17/02	84	Pass
PAH ICV2 10	07/17/02	NA	NA
LCS3 7/17/02	07/17/02	87	Pass
PAH 1	07/17/02	96	Pass
PAH 10	07/17/02	96	Pass
Comments:	Although some surrogate recoveries may be out of the control percent recovery range (70% to 130%), other supporting QC, such as matrix spikes, matrix spike duplicates, method blanks, and laboratory control samples, are performed by KB Labs to further validate reported data.		

Signature: [signature]

Title: Director of Operations

Date: 7/29/02

***Surrogate Compounds:**
S1 = 2-Fluorobiphenyl

KB LABS, INC.

Table 3: SVOC QC Results

Client: Tetra Tech NUS (TtNUS)	**Driller/Sampler**: TtNUS	**Analyst:** Mark Mathews, Maria Mathews
Site: NAF Key West (CTO 254), Key West, FL	**KB Labs Project Manager:** Kelly Bergdoll	**KB Labs Project No.:** 02-061-1
On-site Dates: 7/16/02-7/17/02	**Client Project Manager:** Chuck Bryan	**Matrix**: Water

Matrix Spike/Matrix Spike Duplicate (MS/MSD):

Samples: AIC-GS-03 ms **Date of Analysis:** 7/16/2002

Matrix Spike Compounds	Control Limits			Percent Recoveries			Control Limit Checks		
	Lower	Upper	RPD	MS	MSD	RPD	MS	MSD	RPD
Diesel	70	142	20	25	NA	NA	< LCL	NA	NA

Note: Control limits based on MDL recoveries.
Not enough sample collected by TtNUS to provide MSD analysis.

Samples: AIC-GS-07 ms **Date of Analysis:** 7/16/2002

Matrix Spike Compounds	Control Limits			Percent Recoveries			Control Limit Checks		
	Lower	Upper	RPD	MS	MSD	RPD	MS	MSD	RPD
Diesel	70	142	20	84	NA	NA	Pass	NA	NA

Note: Control limits based on MDL recoveries.
Not enough sample collected by TtNUS to provide MSD analysis.

Samples: AIC-GS-10 ms
AIC-GS-10 msd **Date of Analysis:** 7/17/2002

Matrix Spike Compounds	Control Limits			Percent Recoveries			Control Limit Checks		
	Lower	Upper	RPD	MS	MSD	RPD	MS	MSD	RPD
Diesel	70	142	20	NA	NA	NA	NA	NA	NA
Naphthalene	69	92	20	67	83	21	< LCL	Pass	> RPDL
Acenaphthalene	79	103	20	73	82	12	< LCL	Pass	Pass
Acenaphthene	84	111	20	72	81	12	< LCL	< LCL	Pass
Fluorene	87	119	20	73	81	10	< LCL	< LCL	Pass
Phenanthrene	87	129	20	73	81	10	< LCL	< LCL	Pass
Anthracene	81	116	20	44	48	9	< LCL	< LCL	Pass
Fluoranthene	68	123	20	69	77	11	Pass	Pass	Pass
Pyrene	71	108	20	71	79	11	Pass	Pass	Pass
Benzo(a)anthracene	65	121	20	69	74	7	Pass	Pass	Pass
Chrysene	60	112	20	71	75	5	Pass	Pass	Pass
Benzo(b)fluoranthene	68	119	20	84	93	10	Pass	Pass	Pass
Benzo(k)fluoranthene	71	109	20	81	89	9	Pass	Pass	Pass
Benzo(a)pyrene	65	124	20	82	90	9	Pass	Pass	Pass
Dibenzo(a,h)anthracene	63	123	20	88	99	12	Pass	Pass	Pass
Indeno(1,2,3-cd)pyrene	42	82	20	72	78	8	Pass	Pass	Pass
Benzo(ghi)perylene	68	116	20	70	77	10	Pass	Pass	Pass

Note: Control limits based on MDL recoveries.

KB LABS, INC.

Table 3: SVOC QC Results

Client: Tetra Tech NUS (TtNUS)	**Driller/Sampler**: TtNUS	**Analyst:** Mark Mathews, Maria Mathews
Site: NAF Key West (CTO 254), Key West, FL	**KB Labs Project Manager:** Kelly Bergdoll	**KB Labs Project No.:** 02-061-1
On-site Dates: 7/16/02-7/17/02	**Client Project Manager:** Chuck Bryan	**Matrix**: Water

Laboratory Control Spikes (LCS):

Samples:	LCS 1 7/16/02	**Date of Analysis:**	7/16/2002
	LCS 2 7/16/02		7/16/2002
	LCS 3 7/16/02		7/16/2002

Spike Compounds	Control Limits			Percent Recoveries			Control Limit Checks		
	Lower		Upper	LCS#1	LCS#2	LCS#3	LCS#1	LCS#2	LCS#3
Diesel	70	to	130	NA	65	NA	NA	< LCL	NA
Naphthalene	70	to	130	69	NA	104	< LCL	NA	Pass
Acenaphthalene	70	to	130	70	NA	103	Pass	NA	Pass
Acenaphthene	70	to	130	69	NA	103	< LCL	NA	Pass
Fluorene	70	to	130	66	NA	101	< LCL	NA	Pass
Phenanthrene	70	to	130	64	NA	97	< LCL	NA	Pass
Anthracene	70	to	130	34	NA	58	< LCL	NA	< LCL
Fluoranthene	70	to	130	50	NA	62	< LCL	NA	< LCL
Pyrene	70	to	130	50	NA	62	< LCL	NA	< LCL
Benzo(a)anthracene	70	to	130	22	NA	40	< LCL	NA	< LCL
Chrysene	70	to	130	21	NA	58	< LCL	NA	< LCL
Benzo(b)fluoranthene	70	to	130	15	NA	16	< LCL	NA	< LCL
Benzo(k)fluoranthene	70	to	130	14	NA	48	< LCL	NA	< LCL
Benzo(a)pyrene	70	to	130	2	NA	27	< LCL	NA	< LCL
Dibenzo(a,h)anthracene	70	to	130	14	NA	28	< LCL	NA	< LCL
Indeno(1,2,3-cd)pyrene	70	to	130	7	NA	33	< LCL	NA	< LCL
Benzo(ghi)perylene	70	to	130	10	NA	12	< LCL	NA	< LCL

Note: Control limits are based on method guidance.
Low recoveries for late eluting PAH compounds may have been affected by solvent extraction process.

KB LABS, INC.

Table 3: SVOC QC Results

Client: Tetra Tech NUS (TtNUS)	**Driller/Sampler**: TtNUS	**Analyst:** Mark Mathews, Maria Mathews
Site: NAF Key West (CTO 254), Key West, FL	**KB Labs Project Manager:** Kelly Bergdoll	**KB Labs Project No.:** 02-061-1
On-site Dates: 7/16/02-7/17/02	**Client Project Manager:** Chuck Bryan	**Matrix**: Water

Samples: LCS 4 7/16/02 **Date of Analysis:** 7/16/2002
LCS 5 7/17/02 7/17/2002
LCS 6 7/17/02 7/17/2002

Spike Compounds	Control Limits			Percent Recoveries			Control Limit Checks		
	Lower		Upper	LCS#4	LCS#5	LCS#6	LCS#4	LCS#5	LCS#6
Diesel	70	to	130	45	NA	37	< LCL	NA	< LCL
Naphthalene	70	to	130	NA	101	NA	NA	Pass	NA
Acenaphthalene	70	to	130	NA	99	NA	NA	Pass	NA
Acenaphthene	70	to	130	NA	97	NA	NA	Pass	NA
Fluorene	70	to	130	NA	92	NA	NA	Pass	NA
Phenanthrene	70	to	130	NA	87	NA	NA	Pass	NA
Anthracene	70	to	130	NA	42	NA	NA	< LCL	NA
Fluoranthene	70	to	130	NA	72	NA	NA	Pass	NA
Pyrene	70	to	130	NA	76	NA	NA	Pass	NA
Benzo(a)anthracene	70	to	130	NA	18	NA	NA	< LCL	NA
Chrysene	70	to	130	NA	12	NA	NA	< LCL	NA
Benzo(b)fluoranthene	70	to	130	NA	8	NA	NA	< LCL	NA
Benzo(k)fluoranthene	70	to	130	NA	3	NA	NA	< LCL	NA
Benzo(a)pyrene	70	to	130	NA	0	NA	NA	< LCL	NA
Dibenzo(a,h)anthracene	70	to	130	NA	4	NA	NA	< LCL	NA
Indeno(1,2,3-cd)pyrene	70	to	130	NA	1	NA	NA	< LCL	NA
Benzo(ghi)perylene	70	to	130	NA	3	NA	NA	< LCL	NA

Note: Control limits are based on method guidance.
Low recoveries for late eluting PAH compounds may have been affected by solvent extraction process.

KB LABS, INC.

Table 3: SVOC QC Results

Client: Tetra Tech NUS (TtNUS)	**Driller/Sampler**: TtNUS	**Analyst:** Mark Mathews, Maria Mathews
Site: NAF Key West (CTO 254), Key West, FL	**KB Labs Project Manager:** Kelly Bergdoll	**KB Labs Project No.:** 02-061-1
On-site Dates: 7/16/02-7/17/02	**Client Project Manager:** Chuck Bryan	**Matrix**: Water

Samples: LCS 5 7/17/02 **Date of Analysis:** 7/17/2002
LCS 6 7/17/02 7/17/2002

Spike Compounds	Control Limits			Percent Recoveries			Control Limit Checks		
	Lower		Upper	LCS#7	LCS#8		LCS#7	LCS#8	
Diesel	70	to	130	NA	70		NA	Pass	
Naphthalene	70	to	130	64	NA		< LCL	NA	
Acenaphthalene	70	to	130	63	NA		< LCL	NA	
Acenaphthene	70	to	130	63	NA		< LCL	NA	
Fluorene	70	to	130	63	NA		< LCL	NA	
Phenanthrene	70	to	130	64	NA		< LCL	NA	
Anthracene	70	to	130	39	NA		< LCL	NA	
Fluoranthene	70	to	130	61	NA		< LCL	NA	
Pyrene	70	to	130	61	NA		< LCL	NA	
Benzo(a)anthracene	70	to	130	65	NA		< LCL	NA	
Chrysene	70	to	130	68	NA		< LCL	NA	
Benzo(b)fluoranthene	70	to	130	81	NA		Pass	NA	
Benzo(k)fluoranthene	70	to	130	83	NA		Pass	NA	
Benzo(a)pyrene	70	to	130	83	NA		Pass	NA	
Dibenzo(a,h)anthracene	70	to	130	98	NA		Pass	NA	
Indeno(1,2,3-cd)pyrene	70	to	130	78	NA		Pass	NA	
Benzo(ghi)perylene	70	to	130	76	NA		Pass	NA	

Note: Control limits are based on method guidance.
Low recoveries for late eluting PAH compounds may have been affected by solvent extraction process.

KB LABS, INC.

Table 3: SVOC QC Results

Client: Tetra Tech NUS (TtNUS)	**Driller/Sampler**: TtNUS	**Analyst:** Mark Mathews, Maria Mathews
Site: NAF Key West (CTO 254), Key West, FL	**KB Labs Project Manager:** Kelly Bergdoll	**KB Labs Project No.:** 02-061-1
On-site Dates: 7/16/02-7/17/02	**Client Project Manager:** Chuck Bryan	**Matrix**: Water

Initial Calibration Verification (ICV):

Samples: ICV 1, ICV 2, ICV 3 — **Date of Analysis:** 7/16/2002, 7/16/2002, 7/17/2002

Spike Compounds	Control Limits			Percent Recoveries			Control Limit Checks		
	Lower		Upper	ICV#1	ICV#2	ICV#3	ICV#1	ICV#2	ICV#3
Diesel	80	to	120	73	NA	83	< LCL	NA	Pass
Naphthalene	80	to	120	NA	80	NA	NA	Pass	NA
Acenaphthalene	80	to	120	NA	78	NA	NA	< LCL	NA
Acenaphthene	80	to	120	NA	80	NA	NA	Pass	NA
Fluorene	80	to	120	NA	79	NA	NA	< LCL	NA
Phenanthrene	80	to	120	NA	77	NA	NA	< LCL	NA
Anthracene	80	to	120	NA	76	NA	NA	< LCL	NA
Fluoranthene	80	to	120	NA	76	NA	NA	< LCL	NA
Pyrene	80	to	120	NA	78	NA	NA	< LCL	NA
Benzo(a)anthracene	80	to	120	NA	77	NA	NA	< LCL	NA
Chrysene	80	to	120	NA	77	NA	NA	< LCL	NA
Benzo(b)fluoranthene	80	to	120	NA	86	NA	NA	Pass	NA
Benzo(k)fluoranthene	80	to	120	NA	84	NA	NA	Pass	NA
Benzo(a)pyrene	80	to	120	NA	88	NA	NA	Pass	NA
Dibenzo(a,h)anthracene	80	to	120	NA	85	NA	NA	Pass	NA
Indeno(1,2,3-cd)pyrene	80	to	120	NA	65	NA	NA	< LCL	NA
Benzo(ghi)perylene	80	to	120	NA	87	NA	NA	Pass	NA

Note: Control limits are based on method guidance.

KB LABS, INC.

Table 3: SVOC QC Results

Client: Tetra Tech NUS (TtNUS)	**Driller/Sampler**: TtNUS	**Analyst:** Mark Mathews, Maria Mathews
Site: NAF Key West (CTO 254), Key West, FL	**KB Labs Project Manager:** Kelly Bergdoll	**KB Labs Project No.:** 02-061-1
On-site Dates: 7/16/02-7/17/02	**Client Project Manager:** Chuck Bryan	**Matrix**: Water

Samples: ICV 4 **Date of Analysis:** 7/17/2002

Spike Compounds	Control Limits			Percent Recoveries			Control Limit Checks		
	Lower		Upper	ICV#4			ICV#4		
Diesel	80	to	120	NA			NA		
Naphthalene	80	to	120	82			Pass		
Acenaphthalene	80	to	120	79			< LCL		
Acenaphthene	80	to	120	81			Pass		
Fluorene	80	to	120	79			< LCL		
Phenanthrene	80	to	120	76			< LCL		
Anthracene	80	to	120	75			< LCL		
Fluoranthene	80	to	120	74			< LCL		
Pyrene	80	to	120	76			< LCL		
Benzo(a)anthracene	80	to	120	85			Pass		
Chrysene	80	to	120	85			Pass		
Benzo(b)fluoranthene	80	to	120	104			Pass		
Benzo(k)fluoranthene	80	to	120	105			Pass		
Benzo(a)pyrene	80	to	120	114			Pass		
Dibenzo(a,h)anthracene	80	to	120	123			> UCL		
Indeno(1,2,3-cd)pyrene	80	to	120	112			Pass		
Benzo(ghi)perylene	80	to	120	116			Pass		

Note: Control limits are based on method guidance.

Signature: _____ **Date:** 7/29/02

Title: Director of Operations

KB LABS, INC.

Final Data Report

NAF Key West (CTO 254)

Key West, FL

July 16-17, 2002

Prepared for : Tetra Tech NUS

Mobile Laboratory Services	Sample ID AIC- GS -03	Sample ID AIC- GS -07	Sample ID AIC- GS -08	Sample ID AIC- GS - 09	Sample ID AIC- GS -10	Sample ID AIC- GS -11	Sample ID AIC- GS -12	Sample ID AIC- GS -13	Sample ID AIC- GS -14	Sample ID AIC- GS -15	Sample ID AIC- GS -16
Analysis Date:	7/16/2002	7/16/2002	7/16/2002	7/17/2002	7/17/2002	7/17/2002	7/17/2002	7/17/2002	7/17/2002	7/17/2002	7/17/2002
Matrix:	Water	Water	Water	Water	Water	Water	Water	Water	Water	Water	Water
Dilution:	1	1	1	1	1	1	1	1	1	1	1
Diesel	**2.7**	<2	<2	<2	<2	<2	<2	<2	<2	<2	**1.0 L**
Naphthalene	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthalene	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Anthracene	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Pyrene	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b)fluoranthene	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(k)fluoranthene	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)pyrene	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Indeno(1,2,3-cd)pyrene	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(ghi)perylene	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1

Units are mg/L.

L Sample result less than Reporting Limit but greater than MDL

KB LABS, INC.

Final Data Report

NAF Key West (CTO 254)

Key West, FL

July 16-17, 2002

Prepared for : Tetra Tech NUS

Mobile Laboratory Services	Sample ID AIC- GS -17	Sample ID AIC- GS -18	Sample ID AIC- GS -19	Sample ID AIC- GS -20	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID
Analysis Date:	7/17/2002	7/17/2002	7/17/2002	7/17/2002							
Matrix:	Water	Water	Water	Water							
Dilution:	1	1	1	1							
Diesel	<2	<2	<2	<2							
Naphthalene	<0.1	<0.1	<0.1	<0.1							
Acenaphthalene	<0.1	<0.1	<0.1	<0.1							
Acenaphthene	<0.1	<0.1	<0.1	<0.1							
Fluorene	<0.1	<0.1	<0.1	<0.1							
Phenanthrene	<0.1	<0.1	<0.1	<0.1							
Anthracene	<0.1	<0.1	<0.1	<0.1							
Fluoranthene	<0.1	<0.1	<0.1	<0.1							
Pyrene	<0.1	<0.1	<0.1	<0.1							
Benzo(a)anthracene	<0.1	<0.1	<0.1	<0.1							
Chrysene	<0.1	<0.1	<0.1	<0.1							
Benzo(b)fluoranthene	<0.1	<0.1	<0.1	<0.1							
Benzo(k)fluoranthene	<0.1	<0.1	<0.1	<0.1							
Benzo(a)pyrene	<0.1	<0.1	<0.1	<0.1							
Dibenzo(a,h)anthracene	<0.1	<0.1	<0.1	<0.1							
Indeno(1,2,3-cd)pyrene	<0.1	<0.1	<0.1	<0.1							
Benzo(ghi)perylene	<0.1	<0.1	<0.1	<0.1							

Units are mg/L.

Mobile Laboratory Services
6821 SW Archer Road
Gainesville, FL 32608
TEL (352) 367-0073
FAX (352) 367-0074

CHAIN-OF-CUSTODY RECORD

7-16-02

MOBILE UNIT # KB3

CLIENT NAME	PROJECT NAME & ADDRESS	
Tetra Tech	NAP Pensacola CTO 204	
SAMPLERS	CONTACT PERSON: Barry McCree	BATCH # (Lab Use Only)

PRESERVATION: C Chilled; H HCL; Ot Other (see Remarks)

IDENTIFY PARAMETERS DESIRED AND NO. OF CONTAINERS: VOLATILES; DRO + PAH

SAMPLE FIELD ID.\ NUMBER	DATE SAMPLED	TIME SAMPLED	COMP.	GRAB	DATE REC'D	TIME REC'D	STATION LOCATION / No.	SAMPLE MATRIX	NUMBER OF CONTAINERS	VOLATILES	DRO + PAH			COMMENT
NAP-GS-03	7-16-02				7-16-02	14:07		W	1		1			
NAP-GS-07	"	15:32			"	15:34		W	1		1			
NAP-GS-08		16:45				16:50		W	1		1			

Precleaned Containers Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Date / Time
[signature]		[signature]	7/16/02
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Date / Time
[signature]	7/16/02	[signature]	7/16/02

Remarks and Observations: Duplicate Sample for MS/MSD

Matrix Types S Soil SW Surface Water GW Ground Water SG Soil Gas

Mobile Laboratory Services
6821 SW Archer Road
Gainesville, FL 32608
TEL (352) 367-0073
FAX (352) 367-0074

CHAIN-OF-CUSTODY RECORD

7-17-02

MOBILE UNIT # KB3

CLIENT NAME	PROJECT NAME & ADDRESS KB 02-01-01
Tetra Tech	MAF Key West CTO 254
SAMPLERS	CONTACT PERSON: Emily McCree
	BATCH # (Lab Use Only)

PRESERVATION: C Chilled; H HCL; Ct Other (see Remarks)

SAMPLE FIELD ID.\ NUMBER	DATE SAMPLED	TIME SAMPLED	COMP.	GRAB	DATE REC'D	TIME REC'D	STATION LOCATION / No.	SAMPLE MATRIX	NUMBER OF CONTAINERS	VOLATILES	GRO TPH			COMMENT
AIC GS 09	7-17-02	0820			7-17-02	9:26		W	1					WG VOL SAMPLE
AIC GS 10		900				915								AIC GS MS GS
AIC GS 11		930				941								MS 7-17-02
AIC GS 12		10:20												
AIC GS 13		11:30				11:36								
AIC GS 14		11:45												
AIC GS 15						3:35								
AIC GS 16						3:35								
AIC GS 17						1550								
AIC GS 18						15:30								
AIC GS 19						16:35								
AIC GS 20						16:35								

Precleaned Containers Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Date / Time
Martin Martes	7-17-02	E. Walker	7/17/02
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Date / Time
E. Walker	7-17-02	Martin Martes	7-17-02

Remarks and Observations

Matrix Types S Soil SW Surface Water GW Ground Water SG Soil Gas

Tetra Tech NUS **INTERNAL CORRESPONDENCE**

TO:	**C. BRYAN**	**DATE:**	**NOVEMBER 22, 2002**
FROM:	**ETHAN G. LEE**	**COPIES:**	**DV FILE**

SUBJECT: **INORGANIC DATA VALIDATION – LEAD AND MISCELLANEOUS PARAMETERS**
NAS KEY WEST – CTO 254
SAMPLE DELIVERY GROUP (SDG) – 254-7

SAMPLES: 9/AQUEOUS/

AIC-MW-01-0902	AIC-MW-02-0902	AIC-MW-03-0902
AIC-MW-04-0902	AIC-MW-05D-0902	DUP-01-0902
FC-MW-05-0902	FC-MW-06-0902	FC-MW-20-0902

Overview

The sample set for NAS Key West, CTO 254, SDG 254-7, consists of nine (9) aqueous environmental samples. One (1) field duplicate pair (DUP-01-0902 / AIC-MW-02-0902) is included in this SDG.

All samples were analyzed for lead. Samples AIC-MW-03-0902 and AIC-MW-05D-0902 were analyzed for nitrate and sulfate. The samples were collected by Tetra Tech NUS September 17-18, 2002 and analyzed by Katahdin Analytical Services. Lead analyses were conducted using method SW846 6010B. Nitrate analyses were conducted using method EPA 353.2. Sulfate analyses were conducted using method EPA 300.

Lead analyses were conducted using Trace Inductively Coupled Plasma (ICP) methodology.

These data were evaluated based on the following parameters:

* • Data Completeness
* • Holding Times
* • Calibration Recoveries
• Laboratory Blank Analyses
* • Field Duplicate Results
* • Detection Limits

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

Laboratory Blank Analyses

The following contaminant was detected in the laboratory preparation blank at the following maximum concentration:

Analyte	Maximum Concentration	Action Level
Lead	2.26 ug/L	11.3 ug/L

An action level of 5X the maximum concentration was used to evaluate the sample data for blank contamination. Sample aliquot and dilution factors, if applicable, were taken into consideration when evaluating for blank contamination. Positive results < Action Level for lead were qualified as nondetected (U) due to blank contamination.

Additional Comments

The positive result for nitrate was greater than the measured detection limit (MDL) but less than the practical quantitation limit (PQL). The result was qualified as estimated (J) due to uncertainty near the detection limit.

Dilutions were performed for lead in samples AIC-MW-04-0902 and AIC-MW-05D-0902 because high levels of calcium and magnesium in the samples caused the internal standard to be suppressed. This accounts for the elevated detection limits in the samples.

Executive Summary

Laboratory Performance: Lead was present in the laboratory preparation blank.

Other Factors Affecting Data Quality: None.

The data for these analyses were reviewed with reference to the "National Functional Guidelines for Inorganic Review", February 1994 and the NFESC document entitled "Navy IRCDQM" (September 1999).

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 NFESC Guidelines and the Quality Assurance Project Plan (QAPP)."

Tetra Tech NUS
Ethan G. Lee
Environmental Scientist

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

Qualifier Codes:

A	=	Lab Blank Contamination
B	=	Field Blank Contamination
C	=	Calibration (i.e., % RSDs, %Ds, ICVs, CCVs, RPDs, RRFs, etc.) Noncompliance
D	=	MS/MSD Noncompliance
E	=	LCS/LCSD 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 - include ICSAB % R's
L	=	Instrument Calibration Range Exceedance
M	=	Sample Preservation
N	=	Internal Standard Noncompliance
N01	=	Internal Standard Noncompliance Dioxins
N02	=	Recovery Standard Noncompliance Dioxins
N03	=	Clean-up Standard Noncompliance Dioxins
O	=	Poor Instrument Performance (i.e., base-time drifting)
P	=	Uncertainty near detection limit (< 2 x IDL for inorganics and <CRQL for organics)
Q	=	Other problems (can encompass a number of issues)
R	=	Surrogates Recovery Noncompliance
S	=	Pesticide/PCB Resolution
T	=	% Breakdown Noncompliance for DDT and Endrin
U	=	Pest/PCD% between columns for positive results
V	=	Non-linear calibrations, tuning $r < 0.995$ (correlation coefficient)
W	=	EMPC result
X	=	Signal to noise response drop
Y	=	Percent solids <30%
Z	=	Uncertainty at 2 sigma deviation is less than sample activity

PROJ_NO: 4260

SDG: 254-7 MEDIA: WATER DATA FRACTION: M

nsample	AIC-MW-01-0902
samp_date	9/18/2002
lab_id	WS3715-002
qc_type	NM
units	UG/L
Pct_Solids	0
DUP_OF:	

Parameter	Result	Val Qual	Qual Code
LEAD	2.18	U	

nsample	AIC-MW-02-0902
samp_date	9/17/2002
lab_id	WS3701-006
qc_type	NM
units	UG/L
Pct_Solids	0
DUP_OF:	

Parameter	Result	Val Qual	Qual Code
LEAD	2.18	U	

nsample	AIC-MW-03-0902
samp_date	9/17/2002
lab_id	WS3701-005
qc_type	NM
units	UG/L
Pct_Solids	0
DUP_OF:	

Parameter	Result	Val Qual	Qual Code
LEAD	2.18	U	

PROJ_NO: 4260

SDG: 254-7 MEDIA: WATER DATA FRACTION: M

nsample	AIC-MW-04-0902
samp_date	9/17/2002
lab_id	WS3701-004
qc_type	NM
units	UG/L
Pct_Solids	0
DUP_OF:	

Parameter	Result	Val Qual	Qual Code
LEAD	10.9	U	

nsample	AIC-MW-05D-0902
samp_date	9/18/2002
lab_id	WS3715-001
qc_type	NM
units	UG/L
Pct_Solids	0
DUP_OF:	

Parameter	Result	Val Qual	Qual Code
LEAD	10.9	U	

nsample	DUP-01-0902
samp_date	9/17/2002
lab_id	WS3701-007
qc_type	NM
units	UG/L
Pct_Solids	0
DUP_OF:	AIC-MW-02-0902

Parameter	Result	Val Qual	Qual Code
LEAD	2.18	U	

PROJ_NO: 4260

SDG: 254-7 MEDIA: WATER DATA FRACTION: M

nsample	FC-MW-05-0902
samp_date	9/17/2002
lab_id	WS3701-002
qc_type	NM
units	UG/L
Pct_Solids	0
DUP_OF:	

Parameter	Result	Val Qual	Qual Code
LEAD	4.6	U	A

nsample	FC-MW-06-0902
samp_date	9/17/2002
lab_id	WS3701-003
qc_type	NM
units	UG/L
Pct_Solids	0
DUP_OF:	

Parameter	Result	Val Qual	Qual Code
LEAD	36.8		

nsample	FC-MW-20-0902
samp_date	9/17/2002
lab_id	WS3701-001
qc_type	NM
units	UG/L
Pct_Solids	0
DUP_OF:	

Parameter	Result	Val Qual	Qual Code
LEAD	2.18	U	

PROJ_NO: 4260

SDG: 254-7 MEDIA: WATER DATA FRACTION: MISC

nsample	AIC-MW-03-0902
samp_date	9/17/2002
lab_id	WS3701-5
qc_type	NM
Pct_Solids	0
DUP_OF:	

Parameter	units	Result	Val Qual	Qual Code
NITRATE	MG/L	0.009	J	P
SULFATE	MG/L	300		

nsample	AIC-MW-05D-0902
samp_date	9/18/2002
lab_id	WS3715-1
qc_type	NM
Pct_Solids	0
DUP_OF:	

Parameter	units	Result	Val Qual	Qual Code
NITRATE	MG/L	0.10	U	
SULFATE	MG/L	2400		

Tetra Tech NUS **INTERNAL CORRESPONDENCE**

TO:	**C. BRYAN**	**DATE:**	**SEPTEMBER 30, 2002**
FROM:	**ETHAN G. LEE**	**COPIES:**	**DV FILE**

SUBJECT: **INORGANIC DATA VALIDATION – TAL METALS, TIN, AND MISCELLANEOUS PARAMETERS**
NAS KEY WEST – CTO 254
SAMPLE DELIVERY GROUP (SDG) – 254-2

SAMPLES: 9/AQUEOUS/

AIC-DUP-02-0702	AIC-MW-01-0702	AIC-MW-02-0702
AIC-MW-03-0702	AIC-MW-04-0702	AIC-MW-05D-0702
BCBM-MW-01-0702	BCBM-MW-02-0702	DUP-01-0702

Overview

The sample set for NAS Key West, CTO 254, SDG 254-2, consists of nine (9) aqueous environmental samples. Two (2) field duplicate pairs (AIC-DUP-02-0702 / AIC-MW-02-0702; DUP-01-0702 / BCBM-MW-01-0702) are included in this SDG.

Samples BCBM-MW-01-0702, BCBM-MW-02-0702, and DUP-01-0702 were analyzed for Target Analyte List (TAL) metals plus tin. The remaining samples were analyzed for lead. Samples AIC-MW-01-0702, AIC-MW-03-0702, and AIC-MW-04-0702 were analyzed for nitrate and sulfate. The samples were collected by Tetra Tech NUS July 19 and 24-25, 2002 and analyzed by Katahdin Analytical Services. Tin and TAL metals analyses except mercury were conducted using method SW846 6010B. Mercury analyses were conducted using method SW846 7470A. Nitrate analyses were conducted using method EPA 353.2. Sulfate analyses were conducted using method EPA 300.

Metals analyses except mercury were conducted using Inductively Coupled Plasma (ICP) methodologies. Mercury analyses were conducted using Manual Cold Vapor Atomic Absorption (CVAA) methodologies.

These data were evaluated based on the following parameters:

* • Data Completeness
* • Holding Times
* • Calibration Recoveries
  • Laboratory Blank Analyses
* • Field Duplicate Results
* • Detection Limits

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

Laboratory Blank Analyses

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

Analyte	Maximum Concentration	Action Level
Calcium	16.48 ug/L	82.4 ug/L
Iron	27.84 ug/L	139.2 ug/L
Mercury	0.16 ug/L	0.8 ug/L
Potassium[1]	90.0 ug/L	450 ug/L
Sodium[1]	65.0 ug/L	325 ug/L
Zinc[1]	1.59 ug/L	7.95 ug/L

[1] Maximum concentration present in aqueous preparation blank.

An action level of 5X the maximum concentration was used to evaluate the sample data for blank contamination. Sample aliquot and dilution factors, if applicable, were taken into consideration when evaluating for blank contamination. Positive results < Action Level were qualified as nondetected (U) due to blank contamination for iron, mercury, and zinc. No validation action was required for the remaining analytes because either all the results were greater than the action level or they were nondetects.

Notes

Dilutions were made for lead in samples AIC-DUP-02-0702, AIC-MW-01-0702, AIC-MW-02-0702, AIC-MW-03-0702, AIC-MW-04-0702, and AIC-MW-05D-0702.

Dilutions were made for potassium and sodium in samples BCBM-MW-01-0702, BCBM-MW-02-0702, and DUP-01-0702.

Dilutions were made for sulfate in samples AIC-MW-01-0702, AIC-MW-03-0702, and AIC-MW-04-0702.

Executive Summary

Laboratory Performance: Several analytes were present in the laboratory method/preparation blanks.

Other Factors Affecting Data Quality: None.

The data for these analyses were reviewed with reference to the "National Functional Guidelines for Inorganic Review", February 1994 and the NFESC document entitled "Navy IRCDQM" (September 1999).

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

TO: BRYAN, C. – PAGE 3
DATE: SEPTEMBER 30, 2002

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

Ethan G. Lee

Tetra Tech NUS
Ethan G. Lee
Environmental Scientist

Edward Sedlmyer/for

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

Qualifier Codes:

A = Lab Blank Contamination
B = Field Blank Contamination
C = Calibration (i.e., % RSDs, %Ds, ICVs, CCVs, RPDs, RRFs, etc.) Noncompliance
D = MS/MSD Noncompliance
E = LCS/LCSD 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 - include ICSAB % R's
L = Instrument Calibration Range Exceedance
M = Sample Preservation
N = Internal Standard Noncompliance
N01 = Internal Standard Noncompliance Dioxins
N02 = Recovery Standard Noncompliance Dioxins
N03 = Clean-up Standard Noncompliance Dioxins
O = Poor Instrument Performance (i.e., base-time drifting)
P = Uncertainty near detection limit (< 2 x IDL for inorganics and <CRQL for organics)
Q = Other problems (can encompass a number of issues)
R = Surrogates Recovery Noncompliance
S = Pesticide/PCB Resolution
T = % Breakdown Noncompliance for DDT and Endrin
U = Pest/PCD% between columns for positive results
V = Non-linear calibrations, tuning $r < 0.995$ (correlation coefficient)
W = EMPC result
X = Signal to noise response drop
Y = Percent solids <30%
Z = Uncertainty at 2 sigma deviation is less than sample activity

PROJ_NO: 4260

SDG: 254-2 MEDIA: WATER DATA FRACTION: M

nsample	AIC-DUP-02-0702
samp_date	7/24/2002
lab_id	WS1689-003
qc_type	NM
units	UG/L
Pct_Solids	0
DUP_OF:	AIC-MW-02-0702

Parameter	Result	ValQual	QualCode
LEAD	4.36	U	

nsample	AIC-MW-01-0702
samp_date	7/25/2002
lab_id	WS1696-001
qc_type	NM
units	UG/L
Pct_Solids	0
DUP_OF:	

Parameter	Result	ValQual	QualCode
LEAD	4.36	U	

nsample	AIC-MW-02-0702
samp_date	7/24/2002
lab_id	WS1689-001
qc_type	NM
units	UG/L
Pct_Solids	0
DUP_OF:	

Parameter	Result	ValQual	QualCode
LEAD	4.36	U	

PROJ_NO: 4260

SDG: 254-2 MEDIA: WATER DATA FRACTION: M

nsample	AIC-MW-03-0702
samp_date	7/25/2002
lab_id	WS1696-002
qc_type	NM
units	UG/L
Pct_Solids	0
DUP_OF:	

Parameter	Result	ValQual	QualCode
LEAD	4.36	U	

nsample	AIC-MW-04-0702
samp_date	7/25/2002
lab_id	WS1696-003
qc_type	NM
units	UG/L
Pct_Solids	0
DUP_OF:	

Parameter	Result	ValQual	QualCode
LEAD	10.90	U	

nsample	AIC-MW-05D-0702
samp_date	7/24/2002
lab_id	WS1689-002
qc_type	NM
units	UG/L
Pct_Solids	0
DUP_OF:	

Parameter	Result	ValQual	QualCode
LEAD	10.90	U	

PROJ_NO: 4260

SDG: 254-2 MEDIA: WATER DATA FRACTION: M

nsample	BCBM-MW-01-0702	nsample	BCBM-MW-02-0702	nsample	DUP-01-0702
samp_date	7/19/2002	samp_date	7/19/2002	samp_date	7/19/2002
lab_id	WS1672-001	lab_id	WS1672-002	lab_id	WS1672-003
qc_type	NM	qc_type	NM	qc_type	NM
units	UG/L	units	UG/L	units	UG/L
Pct_Solids	0	Pct_Solids	0	Pct_Solids	0
DUP_OF:		DUP_OF:		DUP_OF:	BCBM-MW-01-0702

Parameter	Result	ValQual	QualCode
ALUMINUM	12.4		
ANTIMONY	4.10	U	
ARSENIC	4.2		
BARIUM	5.9		
BERYLLIUM	0.17	U	
CADMIUM	0.32	U	
CALCIUM	159000		
CHROMIUM	0.85	U	
COBALT	0.83	U	
COPPER	2.7		
IRON	17.90	U	
LEAD	2.18	U	
MAGNESIUM	222000		
MANGANESE	3.8		
MERCURY	0.14	U	A
NICKEL	1.22	U	
POTASSIUM	59000		
SELENIUM	4.33	U	
SILVER	1.4		
SODIUM	1480000		
THALLIUM	5.01	U	
TIN	2.28	U	
VANADIUM	1.5		
ZINC	0.40	U	A

Parameter	Result	ValQual	QualCode
ALUMINUM	17.3		
ANTIMONY	4.10	U	
ARSENIC	13.9		
BARIUM	7.8		
BERYLLIUM	0.17	U	
CADMIUM	0.32	U	
CALCIUM	239000		
CHROMIUM	1.5		
COBALT	0.83	U	
COPPER	3.6		
IRON	36.6	U	A
LEAD	2.18	U	
MAGNESIUM	306000		
MANGANESE	3.8		
MERCURY	0.01	U	
NICKEL	1.22	U	
POTASSIUM	93200		
SELENIUM	4.33	U	
SILVER	1.9		
SODIUM	2440000		
THALLIUM	5.01	U	
TIN	2.28	U	
VANADIUM	0.81	U	
ZINC	7.1	U	A

Parameter	Result	ValQual	QualCode
ALUMINUM	9.11	U	
ANTIMONY	4.10	U	
ARSENIC	2.08	U	
BARIUM	5.3		
BERYLLIUM	0.17	U	
CADMIUM	0.32	U	
CALCIUM	151000		
CHROMIUM	0.85	U	
COBALT	0.83	U	
COPPER	2.5		
IRON	17.90	U	
LEAD	2.18	U	
MAGNESIUM	212000		
MANGANESE	3.5		
MERCURY	0.02	U	A
NICKEL	1.22	U	
POTASSIUM	56800		
SELENIUM	4.33	U	
SILVER	1.30	U	
SODIUM	1560000		
THALLIUM	5.01	U	
TIN	2.28	U	
VANADIUM	1.9		
ZINC	0.32	U	

PROJ_NO: 4260

SDG: 254-2 MEDIA: WATER DATA FRACTION: MISC

nsample	AIC-MW-01-0702
samp_date	7/25/2002
lab_id	WS1696-1
qc_type	NM
Pct_Solids	0
DUP_OF:	

Parameter	units	Result	Val Qual	Qual Code
NITRATE	MG/L	0.050	U	
SULFATE	MG/L	110		

nsample	AIC-MW-03-0702
samp_date	7/25/2002
lab_id	WS1696-2
qc_type	NM
Pct_Solids	0
DUP_OF:	

Parameter	units	Result	Val Qual	Qual Code
NITRATE	MG/L	0.050	U	
SULFATE	MG/L	270		

nsample	AIC-MW-04-0702
samp_date	7/25/2002
lab_id	WS1696-3
qc_type	NM
Pct_Solids	0
DUP_OF:	

Parameter	units	Result	Val Qual	Qual Code
NITRATE	MG/L	0.050	U	
SULFATE	MG/L	1000		

Tetra Tech NUS **INTERNAL CORRESPONDENCE**

TO:	**C. BRYAN**	**DATE:**	**SEPTEMBER 30, 2002**
FROM:	**ETHAN G. LEE**	**COPIES:**	**DV FILE**

SUBJECT: **INORGANIC DATA VALIDATION – TAL METALS, TIN, AND MISCELLANEOUS PARAMETERS**
NAS KEY WEST – CTO 264
SAMPLE DELIVERY GROUP (SDG) – 254-1

SAMPLES: 15/SOIL/

AIC-SB-10	AIC-SB-15	AIC-SB-20
AIC-SS-01	AIC-SS-02	AIC-SS-03
AIC-SS-04	AIC-SS-05	AIC-SS-06
AIC-SS-07	AIC-SS-08	BCBM-SB-03-02
BCBM-SB-03-24	BCBM-SB-04-02	BCBM-SB-04-24

Overview

The sample set for NAS Key West, CTO 264, SDG 254-1, consists of fifteen (15) soil environmental samples.

Samples AIC-SB-10, AIC-SB-15, and AIC-SB-20 were analyzed for lead, total combustible organics (TCO) and total organic halides (TOX). The remaining samples were analyzed for Target Analyte List (TAL) metals plus tin. The samples were collected by Tetra Tech NUS July 17, 19, 25, and 26, 2002. TAL metals plus tin and TCO were analyzed by Katahdin Analytical Services. TOX analyses were subcontracted to Severn Trent Laboratories. Tin and TAL metals analyses except mercury were conducted using method SW846 6010B. Mercury analyses were conducted using method SW846 7471A. TCO analyses were conducted using method ASTM D2974-87. TOX analyses were conducted using method SW846 9076.

Metals analyses except mercury were conducted using Inductively Coupled Plasma (ICP) methodologies. Mercury analyses were conducted using Manual Cold Vapor Atomic Absorption (CVAA) methodologies.

These data were evaluated based on the following parameters:

* • Data Completeness
* • Holding Times
* • Calibration Recoveries
  • Laboratory Blank Analyses
* • Detection Limits

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

Laboratory Blank Analyses

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

Analyte	Maximum Concentration	Action Level
Aluminum	57.17 ug/L	28.59 mg/kg
Barium[1]	0.068 mg/kg	0.34 mg/kg
Calcium[1]	12.13 mg/kg	60.6 mg/kg
Magnesium	16.36 ug/L	8.18 mg/kg
Manganese[1]	0.028 mg/kg	0.14 mg/kg
Mercury	0.07 ug/L	0.058 mg/kg
Potassium[1]	18.5 mg/kg	92.5 mg/kg
Sodium[1]	11.0 mg/kg	55.0 mg/kg
Thallium	7.58 ug/L	3.79 mg/kg
Tin[1]	2.085 mg/kg	10.43 mg/kg
Zinc	3.41 ug/L	1.71 mg/kg

[1] Maximum concentration present in soil preparation blank.

An action level of 5X 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. Positive results < Action Level were qualified as nondetected (U) due to blank contamination for mercury, potassium, thallium, tin, and zinc. No validation action was required for the remaining analytes because either all the results were greater than the action level or they were nondetects.

Notes

Dilutions were made for calcium, potassium, and sodium in all samples.

Dilutions were made for copper, iron, and zinc in sample AIC-SS-05.

Dilutions were made for antimony, arsenic, cadmium, chromium, copper, iron, lead, manganese, selenium, thallium, vanadium, and zinc in samples AIC-SS-07 and AIC-SS-08.

Dilutions were made for mercury in sample AIC-SS-08.

Based on the chain of custody and the laboratory specifications, samples AIC-SB-10, AIC-SB-15, and AIC-SB-20 were to be analyzed for only lead, TCO, and TOX. However, the lab also analyzed for mercury. The lab was contacted and Andrea Colby confirmed that mercury should not have been analyzed, so it was laboratory error. The data reviewer deleted mercury from the EDD.

Executive Summary

Laboratory Performance: Several analytes were present in the laboratory method/preparation blanks.

Other Factors Affecting Data Quality: None.

The data for these analyses were reviewed with reference to the "National Functional Guidelines for Inorganic Review", February 1994 and the NFESC document entitled "Navy IRCDQM" (September 1999).

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 NFESC Guidelines and the Quality Assurance Project Plan (QAPP)."

Tetra Tech NUS
Ethan G. Lee
Environmental Scientist

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

Qualifier Codes:

A = Lab Blank Contamination
B = Field Blank Contamination
C = Calibration (i.e., % RSDs, %Ds, ICVs, CCVs, RPDs, RRFs, etc.) Noncompliance
D = MS/MSD Noncompliance
E = LCS/LCSD 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 - include ICSAB % R's
L = Instrument Calibration Range Exceedance
M = Sample Preservation
N = Internal Standard Noncompliance
N01 = Internal Standard Noncompliance Dioxins
N02 = Recovery Standard Noncompliance Dioxins
N03 = Clean-up Standard Noncompliance Dioxins
O = Poor Instrument Performance (i.e., base-time drifting)
P = Uncertainty near detection limit (< 2 x IDL for inorganics and <CRQL for organics)
Q = Other problems (can encompass a number of issues)
R = Surrogates Recovery Noncompliance
S = Pesticide/PCB Resolution
T = % Breakdown Noncompliance for DDT and Endrin
U = Pest/PCD% between columns for positive results
V = Non-linear calibrations, tuning $r < 0.995$ (correlation coefficient)
W = EMPC result
X = Signal to noise response drop
Y = Percent solids <30%
Z = Uncertainty at 2 sigma deviation is less than sample activity

PROJ_NO: 4277

SDG: 254-1 MEDIA: SOIL DATA FRACTION: MISC

nsample	AIC-SB-10
samp_date	7/17/2002
lab_id	WS1649-1
qc_type	NM
Pct_Solids	88
DUP_OF:	

Parameter	units	Result	Val Qual	Qual Code
TOTAL COMBUSTIBLE ORGANI	% AS	7.2		
TOTAL ORGANIC HALIDES	MG/KG	270		

nsample	AIC-SB-15
samp_date	7/17/2002
lab_id	WS1649-2
qc_type	NM
Pct_Solids	89
DUP_OF:	

Parameter	units	Result	Val Qual	Qual Code
TOTAL COMBUSTIBLE ORGANI	% AS	8.4		
TOTAL ORGANIC HALIDES	MG/KG	220		

nsample	AIC-SB-20
samp_date	7/17/2002
lab_id	WS1649-3
qc_type	NM
Pct_Solids	89
DUP_OF:	

Parameter	units	Result	Val Qual	Qual Code
TOTAL COMBUSTIBLE ORGANI	% AS	10.9		
TOTAL ORGANIC HALIDES	MG/KG	39		

PROJ_NO: 4277

SDG: 254-1 MEDIA: SOIL DATA FRACTION: M

nsample	AIC-SB-10
samp_date	7/17/2002
lab_id	WS1649-001
qc_type	NM
units	MG/KG
Pct_Solids	88
DUP_OF:	

Parameter	Result	ValQual	QualCode
LEAD	157		

nsample	AIC-SB-15
samp_date	7/17/2002
lab_id	WS1649-002
qc_type	NM
units	MG/KG
Pct_Solids	89
DUP_OF:	

Parameter	Result	ValQual	QualCode
LEAD	36.8		

nsample	AIC-SB-20
samp_date	7/17/2002
lab_id	WS1649-003
qc_type	NM
units	MG/KG
Pct_Solids	89
DUP_OF:	

Parameter	Result	ValQual	QualCode
LEAD	76.9		

PROJ_NO: 4277

SDG: 254-1 MEDIA: SOIL DATA FRACTION: M

nsample	AIC-SS-01
samp_date	7/17/2002
lab_id	WS1649-004
qc_type	NM
units	MG/KG
Pct_Solids	89
DUP_OF:	

Parameter	Result	ValQual	QualCode
ALUMINUM	1020		
ANTIMONY	0.40	U	
ARSENIC	0.86		
BARIUM	6.1		
BERYLLIUM	0.02	U	
CADMIUM	0.05		
CALCIUM	344000		
CHROMIUM	6.9		
COBALT	11.4		
COPPER	18.2		
IRON	795		
LEAD	0.79		
MAGNESIUM	1620		
MANGANESE	7.6		
MERCURY	0.02	U	A
NICKEL	2.7		
POTASSIUM	112	U	A
SELENIUM	0.42	U	
SILVER	0.13	U	
SODIUM	437		
THALLIUM	0.49	U	
TIN	2.6	U	A
VANADIUM	3.5		
ZINC	3.4		

nsample	AIC-SS-02
samp_date	7/17/2002
lab_id	WS1649-005
qc_type	NM
units	MG/KG
Pct_Solids	87
DUP_OF:	

Parameter	Result	ValQual	QualCode
ALUMINUM	1330		
ANTIMONY	0.42	U	
ARSENIC	1.2		
BARIUM	7.9		
BERYLLIUM	0.02	U	
CADMIUM	0.08		
CALCIUM	305000		
CHROMIUM	7.9		
COBALT	38.4		
COPPER	65.3		
IRON	1920		
LEAD	3.2		
MAGNESIUM	1680		
MANGANESE	19.4		
MERCURY	0.05	U	A
NICKEL	10.1		
POTASSIUM	166	U	A
SELENIUM	0.45	U	
SILVER	0.13	U	
SODIUM	380		
THALLIUM	0.52	U	
TIN	3.0	U	A
VANADIUM	3.7		
ZINC	9.3		

nsample	AIC-SS-03
samp_date	7/17/2002
lab_id	WS1649-006
qc_type	NM
units	MG/KG
Pct_Solids	92
DUP_OF:	

Parameter	Result	ValQual	QualCode
ALUMINUM	841		
ANTIMONY	0.39	U	
ARSENIC	0.34		
BARIUM	5.2		
BERYLLIUM	0.02	U	
CADMIUM	0.06		
CALCIUM	351000		
CHROMIUM	6.2		
COBALT	16.8		
COPPER	20.5		
IRON	1060		
LEAD	2.1		
MAGNESIUM	1950		
MANGANESE	10.2		
MERCURY	0.07	U	A
NICKEL	5.4		
POTASSIUM	98.4	U	A
SELENIUM	0.42	U	
SILVER	0.12	U	
SODIUM	298		
THALLIUM	0.48	U	
TIN	2.5	U	A
VANADIUM	3.3		
ZINC	5.2		

PROJ_NO: 4277

SDG: 254-1 MEDIA: SOIL DATA FRACTION: M

nsample	AIC-SS-04
samp_date	7/17/2002
lab_id	WS1649-007
qc_type	NM
units	MG/KG
Pct_Solids	91
DUP_OF:	

Parameter	Result	ValQual	QualCode
ALUMINUM	691		
ANTIMONY	0.37	U	
ARSENIC	0.74		
BARIUM	4.6		
BERYLLIUM	0.02	U	
CADMIUM	0.05		
CALCIUM	342000		
CHROMIUM	5.2		
COBALT	26.4		
COPPER	36.8		
IRON	1020		
LEAD	0.83		
MAGNESIUM	1450		
MANGANESE	8.7		
MERCURY	0.01	U	
NICKEL	4.9		
POTASSIUM	72.4	U	A
SELENIUM	0.39	U	
SILVER	0.12	U	
SODIUM	267		
THALLIUM	0.46	U	
TIN	2.5	U	A
VANADIUM	2.4		
ZINC	5.1		

nsample	AIC-SS-05
samp_date	7/19/2002
lab_id	WS1668-001
qc_type	NM
units	MG/KG
Pct_Solids	79
DUP_OF:	

Parameter	Result	ValQual	QualCode
ALUMINUM	1500		
ANTIMONY	10.6		
ARSENIC	6.2		
BARIUM	10.1		
BERYLLIUM	0.02	U	
CADMIUM	0.81		
CALCIUM	337000		
CHROMIUM	33.2		
COBALT	2.1		
COPPER	218		
IRON	20600		
LEAD	260		
MAGNESIUM	3110		
MANGANESE	315		
MERCURY	1.9		
NICKEL	22.3		
POTASSIUM	264	U	A
SELENIUM	0.41	U	
SILVER	3.1		
SODIUM	3050		
THALLIUM	0.48	U	
TIN	57.6		
VANADIUM	9.3		
ZINC	489		

nsample	AIC-SS-06
samp_date	7/19/2002
lab_id	WS1668-003
qc_type	NM
units	MG/KG
Pct_Solids	72
DUP_OF:	

Parameter	Result	ValQual	QualCode
ALUMINUM	1340		
ANTIMONY	15.4		
ARSENIC	4.5		
BARIUM	58.9		
BERYLLIUM	0.02	U	
CADMIUM	1.6		
CALCIUM	392000		
CHROMIUM	38.2		
COBALT	2.7		
COPPER	104		
IRON	22100		
LEAD	191		
MAGNESIUM	3190		
MANGANESE	105		
MERCURY	1.2		
NICKEL	19.3		
POTASSIUM	343	U	A
SELENIUM	0.51	U	
SILVER	1.9		
SODIUM	2340		
THALLIUM	0.74	U	A
TIN	73.6		
VANADIUM	8.6		
ZINC	351		

PROJ_NO: 4277

SDG: 254-1 MEDIA: SOIL DATA FRACTION: M

nsample	AIC-SS-07	nsample	AIC-SS-08	nsample	BCBM-SB-03-02
samp_date	7/19/2002	samp_date	7/19/2002	samp_date	7/25/2002
lab_id	WS1668-004	lab_id	WS1668-002	lab_id	WS1705-001
qc_type	NM	qc_type	NM	qc_type	NM
units	MG/KG	units	MG/KG	units	MG/KG
Pct_Solids	73	Pct_Solids	82	Pct_Solids	95
DUP_OF:		DUP_OF:		DUP_OF:	

Parameter	Result	ValQual	QualCode
ALUMINUM	1630		
ANTIMONY	22.0		
ARSENIC	14.8		
BARIUM	17.2		
BERYLLIUM	0.02	U	
CADMIUM	1.8		
CALCIUM	299000		
CHROMIUM	39.1		
COBALT	5.1		
COPPER	541		
IRON	50700		
LEAD	472		
MAGNESIUM	3920		
MANGANESE	198		
MERCURY	1.4		
NICKEL	36.8		
POTASSIUM	490	U	A
SELENIUM	0.94	U	
SILVER	1.9		
SODIUM	4820		
THALLIUM	1.09	U	
TIN	182		
VANADIUM	13.6		
ZINC	680		

Parameter	Result	ValQual	QualCode
ALUMINUM	1450		
ANTIMONY	20.7		
ARSENIC	19.6		
BARIUM	62.2		
BERYLLIUM	0.02	U	
CADMIUM	2.8		
CALCIUM	302000		
CHROMIUM	47.8		
COBALT	2.8		
COPPER	221		
IRON	33400		
LEAD	407		
MAGNESIUM	3000		
MANGANESE	129		
MERCURY	1.6		
NICKEL	31.2		
POTASSIUM	224	U	A
SELENIUM	0.85	U	
SILVER	3.8		
SODIUM	2250		
THALLIUM	0.99	U	
TIN	77.6		
VANADIUM	9.6		
ZINC	654		

Parameter	Result	ValQual	QualCode
ALUMINUM	4270		
ANTIMONY	0.36	U	
ARSENIC	0.52		
BARIUM	347		
BERYLLIUM	0.04		
CADMIUM	0.33		
CALCIUM	231000		
CHROMIUM	5.2		
COBALT	3.8		
COPPER	16.3		
IRON	10000		
LEAD	4.9		
MAGNESIUM	2490		
MANGANESE	83.3		
MERCURY	0.05	U	A
NICKEL	3.8		
POTASSIUM	151	U	A
SELENIUM	0.38	U	
SILVER	0.11	U	
SODIUM	1050		
THALLIUM	0.44	U	
TIN	2.6	U	A
VANADIUM	40.2		
ZINC	16.2		

PROJ_NO: 4277

SDG: 254-1 MEDIA: SOIL DATA FRACTION: M

nsample	BCBM-SB-03-24
samp_date	7/25/2002
lab_id	WS1705-002
qc_type	NM
units	MG/KG
Pct_Solids	93
DUP_OF:	

Parameter	Result	ValQual	QualCode
ALUMINUM	2680		
ANTIMONY	1.5		
ARSENIC	0.74		
BARIUM	28.2		
BERYLLIUM	0.04		
CADMIUM	0.21		
CALCIUM	301000		
CHROMIUM	6.7		
COBALT	2.5		
COPPER	11.9		
IRON	6200		
LEAD	9.4		
MAGNESIUM	2300		
MANGANESE	54.5		
MERCURY	0.05	U	A
NICKEL	3.4		
POTASSIUM	143	U	A
SELENIUM	0.38	U	
SILVER	0.12	U	
SODIUM	1060		
THALLIUM	0.44	U	
TIN	2.7	U	A
VANADIUM	27.7		
ZINC	20.2		

nsample	BCBM-SB-04-02
samp_date	7/26/2002
lab_id	WS1705-003
qc_type	NM
units	MG/KG
Pct_Solids	74
DUP_OF:	

Parameter	Result	ValQual	QualCode
ALUMINUM	311		
ANTIMONY	0.47	U	
ARSENIC	0.78		
BARIUM	7.0		
BERYLLIUM	0.02	U	
CADMIUM	0.04	U	
CALCIUM	385000		
CHROMIUM	2.8		
COBALT	0.10	U	
COPPER	0.72		
IRON	284		
LEAD	0.63		
MAGNESIUM	1880		
MANGANESE	4.2		
MERCURY	0.16		
NICKEL	0.58		
POTASSIUM	268	U	A
SELENIUM	0.50	U	
SILVER	0.15	U	
SODIUM	5860		
THALLIUM	0.57	U	
TIN	3.2	U	A
VANADIUM	2.1		
ZINC	1.9	U	A

nsample	BCBM-SB-04-24
samp_date	7/26/2002
lab_id	WS1705-004
qc_type	NM
units	MG/KG
Pct_Solids	80
DUP_OF:	

Parameter	Result	ValQual	QualCode
ALUMINUM	160		
ANTIMONY	0.44	U	
ARSENIC	0.64		
BARIUM	5.9		
BERYLLIUM	0.02	U	
CADMIUM	0.03	U	
CALCIUM	368000		
CHROMIUM	2.2		
COBALT	0.09	U	
COPPER	0.46		
IRON	130		
LEAD	0.29		
MAGNESIUM	1400		
MANGANESE	2.2		
MERCURY	0.05	U	A
NICKEL	0.51		
POTASSIUM	212	U	A
SELENIUM	0.46	U	
SILVER	0.14	U	
SODIUM	4660		
THALLIUM	0.53	U	
TIN	2.9	U	A
VANADIUM	1.7		
ZINC	1.4	U	A

Tetra Tech NUS **INTERNAL CORRESPONDENCE**

TO:	**C. BRYAN**	**DATE:**	**SEPTEMBER 30, 2002**
FROM:	**EDWARD SEDLMYER**	**COPIES:**	**DV FILE**

SUBJECT: **ORGANIC DATA VALIDATION- VOA/SVOA/PAH/PEST/PCB/TPH/DIOXIN**
CTO 264, NAS KEY WEST
SDG 254-1

SAMPLES: 2/Aqueous

TB-071702 TRIP BLANK

11/Solid

AIC-SB-10	AIC-SB-15	AIC-SB-20	AIC-SS-01
AIC-SS-02	AIC-SS-03	AIC-SS-04	AIC-SS-05
AIC-SS-06	AIC-SS-07	AIC-SS-08	

OVERVIEW

The sample set for CTO 264 NAS Key West, SDG 254-1 consists of two (2) trip blanks and eleven (11) solid environmental samples. The samples were analyzed for priority pollutant list (PPL) volatile organic compounds (VOC) plus MTBE, target compound list (TCL) semivolatile organic compounds (SVOA), polynuclear aromatic hydrocarbons (PAHs), TCL pesticides, PCBs, total petroleum hydrocarbons (TPH), polychlorinated dibenzodioxins and polychlorinated dibenzofurans (PCDD/PCDF). The samples were collected by TetraTech NUS on July 17 and 19, 2002 and analyzed by Katahdin Analytical Services and Paradigm Analytical Laboratory. All analyses were conducted in accordance with Naval Facilities Engineering Service Center (NFESC) Quality Assurance/Quality Control (QA/QC) criteria using SW-846 Methods 8260B, 8270C, 8270C selective ion monitoring (SIM), 8081A, 8082, 8290, and Florida-PRO analysis and reporting protocols. 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 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.

Volatiles

Surrogate recoveries for samples AIC-SS-01, AIC-SS-02, AIC-SS-03, AIC-SS-04 were less than 10% for surrogate dibromofluoromethane. The samples were re-analyzed at slight dilutions, approximately 2X, with recoveries greater than 10% but less than the quality control criteria. Because only one surrogate was out of criteria, no compounds except methylene chloride were detected, and all internal standards were within area count criteria the data validator used the original analysis results as the valid results.

The following compounds were detected in the method blanks:

Compound	Maximum Concentration	Blank Action Level
Methylene Chloride	18 ug/Kg	180 µg/Kg
Chloroform	0.9 ug/L	4.5 ug/L

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

Sample aliquot, percent solids, and dilution factors were taken into consideration when applying the blank action levels. Positive results for methylene chloride below the blank action level were qualified as non-detected, U. Field quality control blanks were not qualified based on laboratory method blank contamination.

Semivolatiles

Sample AIC-SS-07 required a dilution due to high concentrations of non-target compounds. The dilution resulted in elevated reporting limits for non-detected compounds.

PAHs

Sample AIC-SB-10 required a dilution due to high concentrations of non-target compounds. The dilution resulted in elevated reporting limits for non-detected compounds.

Pesticides

The percent difference (%D) between analytical columns for the pesticide analyses exceeded 25% for positive results reported for several compounds in the following samples:

Sample Number	Compound	% Difference	Qualification
AIC-SS-03	4,4'-DDE	36%	J
AIC-SS-05	Heptachlor epoxide	49%	J
	alpha-Chlordane	28%	J
AIC-SS-06	4,4'-DDT	49%	J

The positive results have been qualified as estimated, "J".

Samples AIC-SS-07 and AIC-SS-08 required dilutions due to high concentrations of PCBs. The dilutions resulted in elevated reporting limits for non-detected compounds.

PCBs

The percent difference (%D) between analytical columns for the PCB analyses exceeded 25% for positive results reported for several compounds in the following samples:

Sample Number	Compound	% Difference	Qualification
AIC-SS-06	Arochlor-1254	49%	J

The positive results have been qualified as estimated, "J".

Samples AIC-SS-07 and AIC-SS-08 required dilutions due to high concentrations of target compounds. The dilutions resulted in elevated reporting limits for non-detected compounds.

Dioxins

The following congeners were detected in the method blank:

Compound	Maximum Concentration	Blank Action Level
1,2,3,4,6,7,8-HpCDD	0.290 pg/g	1.45 pg/g
OCDD	3.17 pg/g	15.85 pg/g

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

Sample aliquot, percent solids, and dilution factors were taken into consideration when applying the blank action levels. Positive results for 1,2,3,4,6,7,8-HpCDD and OCDD were all greater than the blank action level so no qualification of the data was necessary.

The following compounds were detected at concentrations greater than the linear range of the instrument and the results have been qualified as estimated, "J":

Sample	Compound	Concentration
AIC-SS-05	OCDD	9,420 pg/g
AIC-SS-08	1,2,3,4,6,7,8-HpCDD	1,450 pg/g
	OCDD	16,600 pg/g
AIC-SS-07	1,2,3,4,6,7,8-HpCDD	2,770 pg/g
	OCDD	34,400 pg/g
AIC-SS-06	1,2,3,4,6,7,8-HpCDD	1,250 pg/g
	OCDD	15,700 pg/g

The laboratory did not re-analyze the aforementioned samples.

Ion abundance ratios did not meet quality control criteria for the following congeners: 1,2,3,7,8-PeCDD in samples AIC-SS-05, AIC-SS-08, AIC-SS-07, and AIC-SS-06 and 2,3,7,8-TCDD in sample AIC-SS-06. The results were reported as EMPCs and qualified as non-detected.

TPH

TPH was detected in the method blank:

Compound	Maximum Concentration	Blank Action Level
TPH	22 ug/L	110 ug/kg

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

Sample aliquot, percent solids, and dilution factors were taken into consideration when applying the blank action levels.

Additional Comments:

Positive results less than the reporting limit (RL) were qualified as estimated "J", due to uncertainty near the detection limit.

EXECUTIVE SUMMARY

Laboratory Performance Issues: Several target compounds were detected in the method blanks.

Other Factors Affecting Data Quality: Several samples required dilutions due to high concentrations of target compounds or matrix interference. Percent difference between columns exceeded criteria for several compounds.

The data for these analyses were reviewed with reference to the EPA Functional Guidelines for Organic Data Validation (10/99), and the NFESC guidelines IRCDQM (Sept., 1999). 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 NFESC guidelines and the Quality Assurance Project Plan (QAPP)."

Edward Sedlmyer
Tetra Tech NUS

Edward Sedlmyer
Chemist/Data Validator

TetraTech NUS

Joseph A. Samchuck
Data Validation Quality Assurance Officer

Attachments:

Appendix A – Qualified Analytical Results
Appendix B – Results as Reported by the Laboratory
Appendix C – Support Documentation

APPENDIX A

QUALIFIED ANALYTICAL RESULTS

PROJ_NO: 4277

SDG: 254-1 MEDIA: WATER DATA FRACTION: OV

nsample	TB-071702
samp_date	7/17/2002
lab_id	WS1649-8
qc_type	NM
units	UG/L
Pct_Solids	0
DUP_OF:	

Parameter	Result	ValQual	QualCode
1,1,1-TRICHLOROETHANE	1	U	
1,1,2,2-TETRACHLOROETHANE	1	U	
1,1,2-TRICHLOROETHANE	1	U	
1,1-DICHLOROETHANE	1	U	
1,1-DICHLOROETHENE	1	U	
1,2-DICHLOROETHANE	1	U	
1,2-DICHLOROPROPANE	1	U	
2-CHLOROETHYL VINYL ETHE	10	U	
BENZENE	1	U	
BROMODICHLOROMETHANE	1	U	
BROMOFORM	1	U	
BROMOMETHANE	2	U	
CARBON TETRACHLORIDE	1	U	
CHLOROBENZENE	1	U	
CHLORODIBROMOMETHANE	1	U	
CHLOROETHANE	2	U	
CHLOROFORM	1	U	
CHLOROMETHANE	2	U	
CIS-1,2-DICHLOROETHENE	1	U	
CIS-1,3-DICHLOROPROPENE	1	U	
ETHYLBENZENE	1	U	
METHYL TERT-BUTYL ETHER	2	U	
METHYLENE CHLORIDE	1	U	
TETRACHLOROETHENE	1	U	
TOLUENE	1	U	
TOTAL XYLENES	5	U	
TRANS-1,2-DICHLOROETHENE	1	U	
TRANS-1,3-DICHLOROPROPEN	1	U	
TRICHLOROETHENE	1	U	
VINYL CHLORIDE	2	U	

nsample	TRIP BLANK
samp_date	7/11/2002
lab_id	WS1668-8
qc_type	NM
units	UG/L
Pct_Solids	0
DUP_OF:	

Parameter	Result	ValQual	QualCode
1,1,1-TRICHLOROETHANE	1	U	
1,1,2,2-TETRACHLOROETHANE	1	U	
1,1,2-TRICHLOROETHANE	1	U	
1,1-DICHLOROETHANE	1	U	
1,1-DICHLOROETHENE	1	U	
1,2-DICHLOROETHANE	1	U	
1,2-DICHLOROPROPANE	1	U	
2-CHLOROETHYL VINYL ETHE	10	U	
BENZENE	1	U	
BROMODICHLOROMETHANE	1	U	
BROMOFORM	1	U	
BROMOMETHANE	2	U	
CARBON TETRACHLORIDE	1	U	
CHLOROBENZENE	1	U	
CHLORODIBROMOMETHANE	1	U	
CHLOROETHANE	2	U	
CHLOROFORM	1	U	
CHLOROMETHANE	2	U	
CIS-1,2-DICHLOROETHENE	1	U	
CIS-1,3-DICHLOROPROPENE	1	U	
ETHYLBENZENE	1	U	
METHYL TERT-BUTYL ETHER	2	U	
METHYLENE CHLORIDE	13		
TETRACHLOROETHENE	1	U	
TOLUENE	1	U	
TOTAL XYLENES	5	U	
TRANS-1,2-DICHLOROETHENE	1	U	
TRANS-1,3-DICHLOROPROPEN	1	U	
TRICHLOROETHENE	1	U	
VINYL CHLORIDE	2	U	

PROJ_NO: 4277

SDG: 254-1 MEDIA: SOIL DATA FRACTION: OV

nsample	AIC-SB-10
samp_date	7/17/2002
lab_id	WS1649-1
qc_type	NM
units	UG/KG
Pct_Solids	88
DUP_OF:	

Parameter	Result	ValQual	QualCode
1,1,1-TRICHLOROETHANE	5	U	
1,1,2,2-TETRACHLOROETHANE	5	U	
1,1,2-TRICHLOROETHANE	5	U	
1,1-DICHLOROETHANE	5	U	
1,1-DICHLOROETHENE	5	U	
1,2-DICHLOROETHANE	5	U	
1,2-DICHLOROPROPANE	5	U	
2-CHLOROETHYL VINYL ETHE	10	U	
BENZENE	5	U	
BROMODICHLOROMETHANE	5	U	
BROMOFORM	5	U	
BROMOMETHANE	10	U	
CARBON TETRACHLORIDE	5	U	
CHLOROBENZENE	5	U	
CHLORODIBROMOMETHANE	5	U	
CHLOROETHANE	10	U	
CHLOROFORM	5	U	
CHLOROMETHANE	10	U	
CIS-1,2-DICHLOROETHENE	5	U	
CIS-1,3-DICHLOROPROPENE	5	U	
ETHYLBENZENE	5	U	
METHYL TERT-BUTYL ETHER	2	U	
METHYLENE CHLORIDE	9	U	A
TETRACHLOROETHENE	5	U	
TOLUENE	5	U	
TOTAL XYLENES	5	U	
TRANS-1,2-DICHLOROETHENE	5	U	
TRANS-1,3-DICHLOROPROPEN	5	U	
TRICHLOROETHENE	5	U	
VINYL CHLORIDE	10	U	

nsample	AIC-SB-15
samp_date	7/17/2002
lab_id	WS1649-2
qc_type	NM
units	UG/KG
Pct_Solids	89
DUP_OF:	

Parameter	Result	ValQual	QualCode
1,1,1-TRICHLOROETHANE	6	U	
1,1,2,2-TETRACHLOROETHANE	6	U	
1,1,2-TRICHLOROETHANE	6	U	
1,1-DICHLOROETHANE	6	U	
1,1-DICHLOROETHENE	6	U	
1,2-DICHLOROETHANE	6	U	
1,2-DICHLOROPROPANE	6	U	
2-CHLOROETHYL VINYL ETHE	11	U	
BENZENE	6	U	
BROMODICHLOROMETHANE	6	U	
BROMOFORM	6	U	
BROMOMETHANE	11	U	
CARBON TETRACHLORIDE	6	U	
CHLOROBENZENE	6	U	
CHLORODIBROMOMETHANE	6	U	
CHLOROETHANE	11	U	
CHLOROFORM	6	U	
CHLOROMETHANE	11	U	
CIS-1,2-DICHLOROETHENE	6	U	
CIS-1,3-DICHLOROPROPENE	6	U	
ETHYLBENZENE	6	U	
METHYL TERT-BUTYL ETHER	2	U	
METHYLENE CHLORIDE	6	U	A
TETRACHLOROETHENE	6	U	
TOLUENE	6	U	
TOTAL XYLENES	6	U	
TRANS-1,2-DICHLOROETHENE	6	U	
TRANS-1,3-DICHLOROPROPEN	6	U	
TRICHLOROETHENE	6	U	
VINYL CHLORIDE	11	U	

nsample	AIC-SB-20
samp_date	7/17/2002
lab_id	WS1649-3
qc_type	NM
units	UG/KG
Pct_Solids	89
DUP_OF:	

Parameter	Result	ValQual	QualCode
1,1,1-TRICHLOROETHANE	5	U	
1,1,2,2-TETRACHLOROETHANE	5	U	
1,1,2-TRICHLOROETHANE	5	U	
1,1-DICHLOROETHANE	5	U	
1,1-DICHLOROETHENE	5	U	
1,2-DICHLOROETHANE	5	U	
1,2-DICHLOROPROPANE	5	U	
2-CHLOROETHYL VINYL ETHE	10	U	
BENZENE	5	U	
BROMODICHLOROMETHANE	5	U	
BROMOFORM	5	U	
BROMOMETHANE	10	U	
CARBON TETRACHLORIDE	5	U	
CHLOROBENZENE	5	U	
CHLORODIBROMOMETHANE	5	U	
CHLOROETHANE	10	U	
CHLOROFORM	5	U	
CHLOROMETHANE	10	U	
CIS-1,2-DICHLOROETHENE	5	U	
CIS-1,3-DICHLOROPROPENE	5	U	
ETHYLBENZENE	5	U	
METHYL TERT-BUTYL ETHER	2	U	
METHYLENE CHLORIDE	5	U	A
TETRACHLOROETHENE	5	U	
TOLUENE	5	U	
TOTAL XYLENES	5	U	
TRANS-1,2-DICHLOROETHENE	5	U	
TRANS-1,3-DICHLOROPROPEN	5	U	
TRICHLOROETHENE	5	U	
VINYL CHLORIDE	10	U	

PROJ_NO: 4277

SDG: 254-1 MEDIA: SOIL DATA FRACTION: OV

nsample	AIC-SS-01	nsample	AIC-SS-02	nsample	AIC-SS-03
samp_date	7/17/2002	samp_date	7/17/2002	samp_date	7/17/2002
lab_id	WS1649-4	lab_id	WS1649-5	lab_id	WS1649-6
qc_type	NM	qc_type	NM	qc_type	NM
units	UG/KG	units	UG/KG	units	UG/KG
Pct_Solids	89	Pct_Solids	87	Pct_Solids	92
DUP_OF:		DUP_OF:		DUP_OF:	

Parameter	Result	ValQual	QualCode
1,1,1-TRICHLOROETHANE	5	U	
1,1,2,2-TETRACHLOROETHANE	5	U	
1,1,2-TRICHLOROETHANE	5	U	
1,1-DICHLOROETHANE	5	U	
1,1-DICHLOROETHENE	5	U	
1,2-DICHLOROETHANE	5	U	
1,2-DICHLOROPROPANE	5	U	
2-CHLOROETHYL VINYL ETHE	10	U	
BENZENE	5	U	
BROMODICHLOROMETHANE	5	U	
BROMOFORM	5	U	
BROMOMETHANE	10	U	
CARBON TETRACHLORIDE	5	U	
CHLOROBENZENE	5	U	
CHLORODIBROMOMETHANE	5	U	
CHLOROETHANE	10	U	
CHLOROFORM	5	U	
CHLOROMETHANE	10	U	
CIS-1,2-DICHLOROETHENE	5	U	
CIS-1,3-DICHLOROPROPENE	5	U	
ETHYLBENZENE	5	U	
METHYL TERT-BUTYL ETHER	2	U	
METHYLENE CHLORIDE	6	U	A
TETRACHLOROETHENE	5	U	
TOLUENE	5	U	
TOTAL XYLENES	5	U	
TRANS-1,2-DICHLOROETHENE	5	U	
TRANS-1,3-DICHLOROPROPEN	5	U	
TRICHLOROETHENE	5	U	
VINYL CHLORIDE	10	U	

Parameter	Result	ValQual	QualCode
1,1,1-TRICHLOROETHANE	5	U	
1,1,2,2-TETRACHLOROETHANE	5	U	
1,1,2-TRICHLOROETHANE	5	U	
1,1-DICHLOROETHANE	5	U	
1,1-DICHLOROETHENE	5	U	
1,2-DICHLOROETHANE	5	U	
1,2-DICHLOROPROPANE	5	U	
2-CHLOROETHYL VINYL ETHE	10	U	
BENZENE	5	U	
BROMODICHLOROMETHANE	5	U	
BROMOFORM	5	U	
BROMOMETHANE	10	U	
CARBON TETRACHLORIDE	5	U	
CHLOROBENZENE	5	U	
CHLORODIBROMOMETHANE	5	U	
CHLOROETHANE	10	U	
CHLOROFORM	5	U	
CHLOROMETHANE	10	U	
CIS-1,2-DICHLOROETHENE	5	U	
CIS-1,3-DICHLOROPROPENE	5	U	
ETHYLBENZENE	5	U	
METHYL TERT-BUTYL ETHER	2	U	
METHYLENE CHLORIDE	9	U	A
TETRACHLOROETHENE	5	U	
TOLUENE	5	U	
TOTAL XYLENES	5	U	
TRANS-1,2-DICHLOROETHENE	5	U	
TRANS-1,3-DICHLOROPROPEN	5	U	
TRICHLOROETHENE	5	U	
VINYL CHLORIDE	10	U	

Parameter	Result	ValQual	QualCode
1,1,1-TRICHLOROETHANE	5	U	
1,1,2,2-TETRACHLOROETHANE	5	U	
1,1,2-TRICHLOROETHANE	5	U	
1,1-DICHLOROETHANE	5	U	
1,1-DICHLOROETHENE	5	U	
1,2-DICHLOROETHANE	5	U	
1,2-DICHLOROPROPANE	5	U	
2-CHLOROETHYL VINYL ETHE	10	U	
BENZENE	5	U	
BROMODICHLOROMETHANE	5	U	
BROMOFORM	5	U	
BROMOMETHANE	10	U	
CARBON TETRACHLORIDE	5	U	
CHLOROBENZENE	5	U	
CHLORODIBROMOMETHANE	5	U	
CHLOROETHANE	10	U	
CHLOROFORM	5	U	
CHLOROMETHANE	10	U	
CIS-1,2-DICHLOROETHENE	5	U	
CIS-1,3-DICHLOROPROPENE	5	U	
ETHYLBENZENE	5	U	
METHYL TERT-BUTYL ETHER	2	U	
METHYLENE CHLORIDE	8	U	A
TETRACHLOROETHENE	5	U	
TOLUENE	5	U	
TOTAL XYLENES	5	U	
TRANS-1,2-DICHLOROETHENE	5	U	
TRANS-1,3-DICHLOROPROPEN	5	U	
TRICHLOROETHENE	5	U	
VINYL CHLORIDE	10	U	

PROJ_NO: 4277

SDG: 254-1 MEDIA: SOIL DATA FRACTION: OV

nsample	AIC-SS-04
samp_date	7/17/2002
lab_id	WS1649-7
qc_type	NM
units	UG/KG
Pct_Solids	91
DUP_OF:	

Parameter	Result	ValQual	QualCode
1,1,1-TRICHLOROETHANE	5	U	
1,1,2,2-TETRACHLOROETHANE	5	U	
1,1,2-TRICHLOROETHANE	5	U	
1,1-DICHLOROETHANE	5	U	
1,1-DICHLOROETHENE	5	U	
1,2-DICHLOROETHANE	5	U	
1,2-DICHLOROPROPANE	5	U	
2-CHLOROETHYL VINYL ETHE	10	U	
BENZENE	5	U	
BROMODICHLOROMETHANE	5	U	
BROMOFORM	5	U	
BROMOMETHANE	10	U	
CARBON TETRACHLORIDE	5	U	
CHLOROBENZENE	5	U	
CHLORODIBROMOMETHANE	5	U	
CHLOROETHANE	10	U	
CHLOROFORM	5	U	
CHLOROMETHANE	10	U	
CIS-1,2-DICHLOROETHENE	5	U	
CIS-1,3-DICHLOROPROPENE	5	U	
ETHYLBENZENE	5	U	
METHYL TERT-BUTYL ETHER	2	U	
METHYLENE CHLORIDE	6	U	A
TETRACHLOROETHENE	5	U	
TOLUENE	5	U	
TOTAL XYLENES	5	U	
TRANS-1,2-DICHLOROETHENE	5	U	
TRANS-1,3-DICHLOROPROPEN	5	U	
TRICHLOROETHENE	5	U	
VINYL CHLORIDE	10	U	

nsample	AIC-SS-05
samp_date	7/19/2002
lab_id	WS1668-1
qc_type	NM
units	UG/KG
Pct_Solids	79
DUP_OF:	

Parameter	Result	ValQual	QualCode
1,1,1-TRICHLOROETHANE	7	U	
1,1,2,2-TETRACHLOROETHANE	7	U	
1,1,2-TRICHLOROETHANE	7	U	
1,1-DICHLOROETHANE	7	U	
1,1-DICHLOROETHENE	7	U	
1,2-DICHLOROETHANE	7	U	
1,2-DICHLOROPROPANE	7	U	
2-CHLOROETHYL VINYL ETHE	15	U	
BENZENE	7	U	
BROMODICHLOROMETHANE	7	U	
BROMOFORM	7	U	
BROMOMETHANE	15	U	
CARBON TETRACHLORIDE	7	U	
CHLOROBENZENE	7	U	
CHLORODIBROMOMETHANE	7	U	
CHLOROETHANE	15	U	
CHLOROFORM	7	U	
CHLOROMETHANE	15	U	
CIS-1,2-DICHLOROETHENE	7	U	
CIS-1,3-DICHLOROPROPENE	7	U	
ETHYLBENZENE	7	U	
METHYL TERT-BUTYL ETHER	3	U	
METHYLENE CHLORIDE	7	U	A
TETRACHLOROETHENE	7	U	
TOLUENE	7	U	
TOTAL XYLENES	7	U	
TRANS-1,2-DICHLOROETHENE	7	U	
TRANS-1,3-DICHLOROPROPEN	7	U	
TRICHLOROETHENE	7	U	
VINYL CHLORIDE	15	U	

nsample	AIC-SS-06
samp_date	7/19/2002
lab_id	WS1668-3
qc_type	NM
units	UG/KG
Pct_Solids	72
DUP_OF:	

Parameter	Result	ValQual	QualCode
1,1,1-TRICHLOROETHANE	7	U	
1,1,2,2-TETRACHLOROETHANE	7	U	
1,1,2-TRICHLOROETHANE	7	U	
1,1-DICHLOROETHANE	7	U	
1,1-DICHLOROETHENE	7	U	
1,2-DICHLOROETHANE	7	U	
1,2-DICHLOROPROPANE	7	U	
2-CHLOROETHYL VINYL ETHE	14	U	
BENZENE	7	U	
BROMODICHLOROMETHANE	7	U	
BROMOFORM	7	U	
BROMOMETHANE	14	U	
CARBON TETRACHLORIDE	7	U	
CHLOROBENZENE	7	U	
CHLORODIBROMOMETHANE	7	U	
CHLOROETHANE	14	U	
CHLOROFORM	7	U	
CHLOROMETHANE	14	U	
CIS-1,2-DICHLOROETHENE	7	U	
CIS-1,3-DICHLOROPROPENE	7	U	
ETHYLBENZENE	7	U	
METHYL TERT-BUTYL ETHER	3	U	
METHYLENE CHLORIDE	7	U	A
TETRACHLOROETHENE	7	U	
TOLUENE	7	U	
TOTAL XYLENES	7	U	
TRANS-1,2-DICHLOROETHENE	7	U	
TRANS-1,3-DICHLOROPROPEN	7	U	
TRICHLOROETHENE	7	U	
VINYL CHLORIDE	14	U	

PROJ_NO: 4277

SDG: 254-1 MEDIA: SOIL DATA FRACTION: OV

nsample	AIC-SS-07	nsample	AIC-SS-08
samp_date	7/19/2002	samp_date	7/19/2002
lab_id	WS1668-4	lab_id	WS1668-2
qc_type	NM	qc_type	NM
units	UG/KG	units	UG/KG
Pct_Solids	73	Pct_Solids	82
DUP_OF:		DUP_OF:	

Parameter	Result	ValQual	QualCode
1,1,1-TRICHLOROETHANE	7	U	
1,1,2,2-TETRACHLOROETHANE	7	U	
1,1,2-TRICHLOROETHANE	7	U	
1,1-DICHLOROETHANE	7	U	
1,1-DICHLOROETHENE	7	U	
1,2-DICHLOROETHANE	7	U	
1,2-DICHLOROPROPANE	7	U	
2-CHLOROETHYL VINYL ETHE	15	U	
BENZENE	7	U	
BROMODICHLOROMETHANE	7	U	
BROMOFORM	7	U	
BROMOMETHANE	15	U	
CARBON TETRACHLORIDE	7	U	
CHLOROBENZENE	7	U	
CHLORODIBROMOMETHANE	7	U	
CHLOROETHANE	15	U	
CHLOROFORM	7	U	
CHLOROMETHANE	15	U	
CIS-1,2-DICHLOROETHENE	7	U	
CIS-1,3-DICHLOROPROPENE	7	U	
ETHYLBENZENE	7	U	
METHYL TERT-BUTYL ETHER	3	U	
METHYLENE CHLORIDE	9	U	A
TETRACHLOROETHENE	7	U	
TOLUENE	7	U	
TOTAL XYLENES	7	U	
TRANS-1,2-DICHLOROETHENE	7	U	
TRANS-1,3-DICHLOROPROPEN	7	U	
TRICHLOROETHENE	7	U	
VINYL CHLORIDE	15	U	

Parameter	Result	ValQual	QualCode
1,1,1-TRICHLOROETHANE	7	U	
1,1,2,2-TETRACHLOROETHANE	7	U	
1,1,2-TRICHLOROETHANE	7	U	
1,1-DICHLOROETHANE	7	U	
1,1-DICHLOROETHENE	7	U	
1,2-DICHLOROETHANE	7	U	
1,2-DICHLOROPROPANE	7	U	
2-CHLOROETHYL VINYL ETHE	15	U	
BENZENE	7	U	
BROMODICHLOROMETHANE	7	U	
BROMOFORM	7	U	
BROMOMETHANE	15	U	
CARBON TETRACHLORIDE	7	U	
CHLOROBENZENE	7	U	
CHLORODIBROMOMETHANE	7	U	
CHLOROETHANE	15	U	
CHLOROFORM	7	U	
CHLOROMETHANE	15	U	
CIS-1,2-DICHLOROETHENE	7	U	
CIS-1,3-DICHLOROPROPENE	7	U	
ETHYLBENZENE	7	U	
METHYL TERT-BUTYL ETHER	3	U	
METHYLENE CHLORIDE	7	U	
TETRACHLOROETHENE	7	U	
TOLUENE	7	U	
TOTAL XYLENES	7	U	
TRANS-1,2-DICHLOROETHENE	7	U	
TRANS-1,3-DICHLOROPROPEN	7	U	
TRICHLOROETHENE	7	U	
VINYL CHLORIDE	15	U	

PROJ_NO: 4277

SDG: 254-1 MEDIA: SOIL DATA FRACTION: OS

nsample	AIC-SS-01
samp_date	7/17/2002
lab_id	WS1649-4
qc_type	NM
units	UG/KG
Pct_Solids	89
DUP_OF:	

Parameter	Result	ValQual	QualCode
1,2,4-TRICHLOROBENZENE	360	U	
1,2-DICHLOROBENZENE	360	U	
1,3-DICHLOROBENZENE	360	U	
1,4-DICHLOROBENZENE	360	U	
2,2'-OXYBIS(1-CHLOROPROPA	360	U	
2,4,5-TRICHLOROPHENOL	900	U	
2,4,6-TRICHLOROPHENOL	360	U	
2,4-DICHLOROPHENOL	360	U	
2,4-DIMETHYLPHENOL	360	U	
2,4-DINITROPHENOL	900	U	
2,4-DINITROTOLUENE	360	U	
2,6-DINITROTOLUENE	360	U	
2-CHLORONAPHTHALENE	360	U	
2-CHLOROPHENOL	360	U	
2-METHYLNAPHTHALENE	360	U	
2-METHYLPHENOL	360	U	
2-NITROANILINE	900	U	
2-NITROPHENOL	360	U	
3,3'-DICHLOROBENZIDINE	360	U	
3-NITROANILINE	900	U	
4,6-DINITRO-2-METHYLPHENO	900	U	
4-BROMOPHENYL PHENYL ET	360	U	
4-CHLORO-3-METHYLPHENOL	360	U	
4-CHLOROANILINE	360	U	
4-CHLOROPHENYL PHENYL ET	360	U	
4-METHYLPHENOL	360	U	
4-NITROANILINE	900	U	
4-NITROPHENOL	900	U	
ACENAPHTHENE	360	U	
ACENAPHTHYLENE	360	U	

nsample	AIC-SS-01
samp_date	7/17/2002
lab_id	WS1649-4
qc_type	NM
units	UG/KG
Pct_Solids	89
DUP_OF:	

Parameter	Result	ValQual	QualCode
ANTHRACENE	360	U	
BENZO(A)ANTHRACENE	360	U	
BENZO(A)PYRENE	360	U	
BENZO(B)FLUORANTHENE	360	U	
BENZO(G,H,I)PERYLENE	360	U	
BENZO(K)FLUORANTHENE	360	U	
BIS(2-CHLOROETHOXY)METHA	360	U	
BIS(2-CHLOROETHYL)ETHER	360	U	
BIS(2-ETHYLHEXYL)PHTHALAT	33	J	P
BUTYL BENZYL PHTHALATE	360	U	
CARBAZOLE	360	U	
CHRYSENE	360	U	
DI-N-BUTYL PHTHALATE	360	U	
DI-N-OCTYL PHTHALATE	360	U	
DIBENZO(A,H)ANTHRACENE	360	U	
DIBENZOFURAN	360	U	
DIETHYL PHTHALATE	360	U	
DIMETHYL PHTHALATE	360	U	
FLUORANTHENE	360	U	
FLUORENE	360	U	
HEXACHLOROBENZENE	360	U	
HEXACHLOROBUTADIENE	360	U	
HEXACHLOROCYCLOPENTADI	360	U	
HEXACHLOROETHANE	360	U	
INDENO(1,2,3-CD)PYRENE	360	U	
ISOPHORONE	360	U	
N-NITROSO-DI-N-PROPYLAMIN	360	U	
N-NITROSODIPHENYLAMINE	360	U	
NAPHTHALENE	360	U	
NITROBENZENE	360	U	

nsample	AIC-SS-01
samp_date	7/17/2002
lab_id	WS1649-4
qc_type	NM
units	UG/KG
Pct_Solids	89
DUP_OF:	

Parameter	Result	ValQual	QualCode
PENTACHLOROPHENOL	900	U	
PHENANTHRENE	360	U	
PHENOL	360	U	
PYRENE	360	U	

PROJ_NO: 4277

SDG: 254-1 MEDIA: SOIL DATA FRACTION: OS

nsample	AIC-SS-02
samp_date	7/17/2002
lab_id	WS1649-5
qc_type	NM
units	UG/KG
Pct_Solids	87
DUP_OF:	

Parameter	Result	ValQual	QualCode
1,2,4-TRICHLOROBENZENE	360	U	
1,2-DICHLOROBENZENE	360	U	
1,3-DICHLOROBENZENE	360	U	
1,4-DICHLOROBENZENE	360	U	
2,2'-OXYBIS(1-CHLOROPROPA	360	U	
2,4,5-TRICHLOROPHENOL	900	U	
2,4,6-TRICHLOROPHENOL	360	U	
2,4-DICHLOROPHENOL	360	U	
2,4-DIMETHYLPHENOL	360	U	
2,4-DINITROPHENOL	900	U	
2,4-DINITROTOLUENE	360	U	
2,6-DINITROTOLUENE	360	U	
2-CHLORONAPHTHALENE	360	U	
2-CHLOROPHENOL	360	U	
2-METHYLNAPHTHALENE	360	U	
2-METHYLPHENOL	360	U	
2-NITROANILINE	900	U	
2-NITROPHENOL	360	U	
3,3'-DICHLOROBENZIDINE	360	U	
3-NITROANILINE	900	U	
4,6-DINITRO-2-METHYLPHENO	900	U	
4-BROMOPHENYL PHENYL ET	360	U	
4-CHLORO-3-METHYLPHENOL	360	U	
4-CHLOROANILINE	360	U	
4-CHLOROPHENYL PHENYL ET	360	U	
4-METHYLPHENOL	360	U	
4-NITROANILINE	900	U	
4-NITROPHENOL	900	U	
ACENAPHTHENE	360	U	
ACENAPHTHYLENE	360	U	

nsample	AIC-SS-02
samp_date	7/17/2002
lab_id	WS1649-5
qc_type	NM
units	UG/KG
Pct_Solids	87
DUP_OF:	

Parameter	Result	ValQual	QualCode
ANTHRACENE	360	U	
BENZO(A)ANTHRACENE	360	U	
BENZO(A)PYRENE	360	U	
BENZO(B)FLUORANTHENE	360	U	
BENZO(G,H,I)PERYLENE	360	U	
BENZO(K)FLUORANTHENE	360	U	
BIS(2-CHLOROETHOXY)METHA	360	U	
BIS(2-CHLOROETHYL)ETHER	360	U	
BIS(2-ETHYLHEXYL)PHTHALAT	42	J	P
BUTYL BENZYL PHTHALATE	360	U	
CARBAZOLE	360	U	
CHRYSENE	360	U	
DI-N-BUTYL PHTHALATE	360	U	
DI-N-OCTYL PHTHALATE	360	U	
DIBENZO(A,H)ANTHRACENE	360	U	
DIBENZOFURAN	360	U	
DIETHYL PHTHALATE	360	U	
DIMETHYL PHTHALATE	360	U	
FLUORANTHENE	360	U	
FLUORENE	360	U	
HEXACHLOROBENZENE	360	U	
HEXACHLOROBUTADIENE	360	U	
HEXACHLOROCYCLOPENTADI	360	U	
HEXACHLOROETHANE	360	U	
INDENO(1,2,3-CD)PYRENE	360	U	
ISOPHORONE	360	U	
N-NITROSO-DI-N-PROPYLAMIN	360	U	
N-NITROSODIPHENYLAMINE	360	U	
NAPHTHALENE	360	U	
NITROBENZENE	360	U	

nsample	AIC-SS-02
samp_date	7/17/2002
lab_id	WS1649-5
qc_type	NM
units	UG/KG
Pct_Solids	87
DUP_OF:	

Parameter	Result	ValQual	QualCode
PENTACHLOROPHENOL	900	U	
PHENANTHRENE	360	U	
PHENOL	360	U	
PYRENE	360	U	

PROJ_NO: 4277

SDG: 254-1 MEDIA: SOIL DATA FRACTION: OS

nsample	AIC-SS-03
samp_date	7/17/2002
lab_id	WS1649-6
qc_type	NM
units	UG/KG
Pct_Solids	92
DUP_OF:	

Parameter	Result	ValQual	QualCode
1,2,4-TRICHLOROBENZENE	360	U	
1,2-DICHLOROBENZENE	360	U	
1,3-DICHLOROBENZENE	360	U	
1,4-DICHLOROBENZENE	360	U	
2,2'-OXYBIS(1-CHLOROPROPA	360	U	
2,4,5-TRICHLOROPHENOL	900	U	
2,4,6-TRICHLOROPHENOL	360	U	
2,4-DICHLOROPHENOL	360	U	
2,4-DIMETHYLPHENOL	360	U	
2,4-DINITROPHENOL	900	U	
2,4-DINITROTOLUENE	360	U	
2,6-DINITROTOLUENE	360	U	
2-CHLORONAPHTHALENE	360	U	
2-CHLOROPHENOL	360	U	
2-METHYLNAPHTHALENE	360	U	
2-METHYLPHENOL	360	U	
2-NITROANILINE	900	U	
2-NITROPHENOL	360	U	
3,3'-DICHLOROBENZIDINE	360	U	
3-NITROANILINE	900	U	
4,6-DINITRO-2-METHYLPHENO	900	U	
4-BROMOPHENYL PHENYL ET	360	U	
4-CHLORO-3-METHYLPHENOL	360	U	
4-CHLOROANILINE	360	U	
4-CHLOROPHENYL PHENYL ET	360	U	
4-METHYLPHENOL	360	U	
4-NITROANILINE	900	U	
4-NITROPHENOL	900	U	
ACENAPHTHENE	360	U	
ACENAPHTHYLENE	360	U	

nsample	AIC-SS-03
samp_date	7/17/2002
lab_id	WS1649-6
qc_type	NM
units	UG/KG
Pct_Solids	92
DUP_OF:	

Parameter	Result	ValQual	QualCode
ANTHRACENE	360	U	
BENZO(A)ANTHRACENE	360	U	
BENZO(A)PYRENE	360	U	
BENZO(B)FLUORANTHENE	360	U	
BENZO(G,H,I)PERYLENE	360	U	
BENZO(K)FLUORANTHENE	360	U	
BIS(2-CHLOROETHOXY)METHA	360	U	
BIS(2-CHLOROETHYL)ETHER	360	U	
BIS(2-ETHYLHEXYL)PHTHALAT	360	U	
BUTYL BENZYL PHTHALATE	360	U	
CARBAZOLE	360	U	
CHRYSENE	360	U	
DI-N-BUTYL PHTHALATE	360	U	
DI-N-OCTYL PHTHALATE	360	U	
DIBENZO(A,H)ANTHRACENE	360	U	
DIBENZOFURAN	360	U	
DIETHYL PHTHALATE	360	U	
DIMETHYL PHTHALATE	360	U	
FLUORANTHENE	360	U	
FLUORENE	360	U	
HEXACHLOROBENZENE	360	U	
HEXACHLOROBUTADIENE	360	U	
HEXACHLOROCYCLOPENTADI	360	U	
HEXACHLOROETHANE	360	U	
INDENO(1,2,3-CD)PYRENE	360	U	
ISOPHORONE	360	U	
N-NITROSO-DI-N-PROPYLAMIN	360	U	
N-NITROSODIPHENYLAMINE	360	U	
NAPHTHALENE	360	U	
NITROBENZENE	360	U	

nsample	AIC-SS-03
samp_date	7/17/2002
lab_id	WS1649-6
qc_type	NM
units	UG/KG
Pct_Solids	92
DUP_OF:	

Parameter	Result	ValQual	QualCode
PENTACHLOROPHENOL	900	U	
PHENANTHRENE	360	U	
PHENOL	360	U	
PYRENE	360	U	

PROJ_NO: 4277

SDG: 254-1 MEDIA: SOIL DATA FRACTION: OS

nsample	AIC-SS-04
samp_date	7/17/2002
lab_id	WS1649-7
qc_type	NM
units	UG/KG
Pct_Solids	91
DUP_OF:	

Parameter	Result	ValQual	QualCode
1,2,4-TRICHLOROBENZENE	360	U	
1,2-DICHLOROBENZENE	360	U	
1,3-DICHLOROBENZENE	360	U	
1,4-DICHLOROBENZENE	360	U	
2,2'-OXYBIS(1-CHLOROPROPA	360	U	
2,4,5-TRICHLOROPHENOL	900	U	
2,4,6-TRICHLOROPHENOL	360	U	
2,4-DICHLOROPHENOL	360	U	
2,4-DIMETHYLPHENOL	360	U	
2,4-DINITROPHENOL	900	U	
2,4-DINITROTOLUENE	360	U	
2,6-DINITROTOLUENE	360	U	
2-CHLORONAPHTHALENE	360	U	
2-CHLOROPHENOL	360	U	
2-METHYLNAPHTHALENE	360	U	
2-METHYLPHENOL	360	U	
2-NITROANILINE	900	U	
2-NITROPHENOL	360	U	
3,3'-DICHLOROBENZIDINE	360	U	
3-NITROANILINE	900	U	
4,6-DINITRO-2-METHYLPHENO	900	U	
4-BROMOPHENYL PHENYL ET	360	U	
4-CHLORO-3-METHYLPHENOL	360	U	
4-CHLOROANILINE	360	U	
4-CHLOROPHENYL PHENYL ET	360	U	
4-METHYLPHENOL	360	U	
4-NITROANILINE	900	U	
4-NITROPHENOL	900	U	
ACENAPHTHENE	360	U	
ACENAPHTHYLENE	360	U	

nsample	AIC-SS-04
samp_date	7/17/2002
lab_id	WS1649-7
qc_type	NM
units	UG/KG
Pct_Solids	91
DUP_OF:	

Parameter	Result	ValQual	QualCode
ANTHRACENE	360	U	
BENZO(A)ANTHRACENE	360	U	
BENZO(A)PYRENE	360	U	
BENZO(B)FLUORANTHENE	360	U	
BENZO(G,H,I)PERYLENE	360	U	
BENZO(K)FLUORANTHENE	360	U	
BIS(2-CHLOROETHOXY)METHA	360	U	
BIS(2-CHLOROETHYL)ETHER	360	U	
BIS(2-ETHYLHEXYL)PHTHALAT	110	J	P
BUTYL BENZYL PHTHALATE	360	U	
CARBAZOLE	360	U	
CHRYSENE	360	U	
DI-N-BUTYL PHTHALATE	360	U	
DI-N-OCTYL PHTHALATE	49	J	P
DIBENZO(A,H)ANTHRACENE	360	U	
DIBENZOFURAN	360	U	
DIETHYL PHTHALATE	360	U	
DIMETHYL PHTHALATE	360	U	
FLUORANTHENE	360	U	
FLUORENE	360	U	
HEXACHLOROBENZENE	360	U	
HEXACHLOROBUTADIENE	360	U	
HEXACHLOROCYCLOPENTADI	360	U	
HEXACHLOROETHANE	360	U	
INDENO(1,2,3-CD)PYRENE	360	U	
ISOPHORONE	360	U	
N-NITROSO-DI-N-PROPYLAMIN	360	U	
N-NITROSODIPHENYLAMINE	360	U	
NAPHTHALENE	360	U	
NITROBENZENE	360	U	

nsample	AIC-SS-04
samp_date	7/17/2002
lab_id	WS1649-7
qc_type	NM
units	UG/KG
Pct_Solids	91
DUP_OF:	

Parameter	Result	ValQual	QualCode
PENTACHLOROPHENOL	900	U	
PHENANTHRENE	360	U	
PHENOL	360	U	
PYRENE	360	U	

PROJ_NO: 4277

SDG: 254-1 MEDIA: SOIL DATA FRACTION: OS

nsample	AIC-SS-05
samp_date	7/19/2002
lab_id	WS1668-1
qc_type	NM
units	UG/KG
Pct_Solids	79
DUP_OF:	

Parameter	Result	ValQual	QualCode
1,2,4-TRICHLOROBENZENE	430	U	
1,2-DICHLOROBENZENE	430	U	
1,3-DICHLOROBENZENE	430	U	
1,4-DICHLOROBENZENE	430	U	
2,2'-OXYBIS(1-CHLOROPROPA	430	U	
2,4,5-TRICHLOROPHENOL	1100	U	
2,4,6-TRICHLOROPHENOL	430	U	
2,4-DICHLOROPHENOL	430	U	
2,4-DIMETHYLPHENOL	430	U	
2,4-DINITROPHENOL	1100	U	
2,4-DINITROTOLUENE	430	U	
2,6-DINITROTOLUENE	430	U	
2-CHLORONAPHTHALENE	430	U	
2-CHLOROPHENOL	430	U	
2-METHYLNAPHTHALENE	430	U	
2-METHYLPHENOL	430	U	
2-NITROANILINE	1100	U	
2-NITROPHENOL	430	U	
3,3'-DICHLOROBENZIDINE	430	U	
3-NITROANILINE	1100	U	
4,6-DINITRO-2-METHYLPHENO	1100	U	
4-BROMOPHENYL PHENYL ET	430	U	
4-CHLORO-3-METHYLPHENOL	430	U	
4-CHLOROANILINE	430	U	
4-CHLOROPHENYL PHENYL ET	430	U	
4-METHYLPHENOL	430	U	
4-NITROANILINE	1100	U	
4-NITROPHENOL	1100	U	
ACENAPHTHENE	430	U	
ACENAPHTHYLENE	430	U	

nsample	AIC-SS-05
samp_date	7/19/2002
lab_id	WS1668-1
qc_type	NM
units	UG/KG
Pct_Solids	79
DUP_OF:	

Parameter	Result	ValQual	QualCode
ANTHRACENE	430	U	
BENZO(A)ANTHRACENE	34	J	P
BENZO(A)PYRENE	39	J	P
BENZO(B)FLUORANTHENE	56	J	P
BENZO(G,H,I)PERYLENE	39	J	P
BENZO(K)FLUORANTHENE	430	U	
BIS(2-CHLOROETHOXY)METHA	430	U	
BIS(2-CHLOROETHYL)ETHER	430	U	
BIS(2-ETHYLHEXYL)PHTHALAT	670		
BUTYL BENZYL PHTHALATE	430	U	
CARBAZOLE	430	U	
CHRYSENE	34	J	P
DI-N-BUTYL PHTHALATE	430	U	
DI-N-OCTYL PHTHALATE	430	U	
DIBENZO(A,H)ANTHRACENE	430	U	
DIBENZOFURAN	430	U	
DIETHYL PHTHALATE	430	U	
DIMETHYL PHTHALATE	430	U	
FLUORANTHENE	42	J	P
FLUORENE	430	U	
HEXACHLOROBENZENE	430	U	
HEXACHLOROBUTADIENE	430	U	
HEXACHLOROCYCLOPENTADI	430	U	
HEXACHLOROETHANE	430	U	
INDENO(1,2,3-CD)PYRENE	32	J	P
ISOPHORONE	430	U	
N-NITROSO-DI-N-PROPYLAMIN	430	U	
N-NITROSODIPHENYLAMINE	430	U	
NAPHTHALENE	430	U	
NITROBENZENE	430	U	

nsample	AIC-SS-05
samp_date	7/19/2002
lab_id	WS1668-1
qc_type	NM
units	UG/KG
Pct_Solids	79
DUP_OF:	

Parameter	Result	ValQual	QualCode
PENTACHLOROPHENOL	1100	U	
PHENANTHRENE	430	U	
PHENOL	430	U	
PYRENE	39	J	P

PROJ_NO: 4277

SDG: 254-1 MEDIA: SOIL DATA FRACTION: OS

nsample	AIC-SS-06
samp_date	7/19/2002
lab_id	WS1668-3
qc_type	NM
units	UG/KG
Pct_Solids	72
DUP_OF:	

Parameter	Result	ValQual	QualCode
1,2,4-TRICHLOROBENZENE	460	U	
1,2-DICHLOROBENZENE	460	U	
1,3-DICHLOROBENZENE	460	U	
1,4-DICHLOROBENZENE	460	U	
2,2'-OXYBIS(1-CHLOROPROPA	460	U	
2,4,5-TRICHLOROPHENOL	1100	U	
2,4,6-TRICHLOROPHENOL	460	U	
2,4-DICHLOROPHENOL	460	U	
2,4-DIMETHYLPHENOL	460	U	
2,4-DINITROPHENOL	1100	U	
2,4-DINITROTOLUENE	460	U	
2,6-DINITROTOLUENE	460	U	
2-CHLORONAPHTHALENE	460	U	
2-CHLOROPHENOL	460	U	
2-METHYLNAPHTHALENE	460	U	
2-METHYLPHENOL	460	U	
2-NITROANILINE	1100	U	
2-NITROPHENOL	460	U	
3,3'-DICHLOROBENZIDINE	460	U	
3-NITROANILINE	1100	U	
4,6-DINITRO-2-METHYLPHENO	1100	U	
4-BROMOPHENYL PHENYL ET	460	U	
4-CHLORO-3-METHYLPHENOL	460	U	
4-CHLOROANILINE	460	U	
4-CHLOROPHENYL PHENYL ET	460	U	
4-METHYLPHENOL	460	U	
4-NITROANILINE	1100	U	
4-NITROPHENOL	1100	U	
ACENAPHTHENE	460	U	
ACENAPHTHYLENE	460	U	

nsample	AIC-SS-06
samp_date	7/19/2002
lab_id	WS1668-3
qc_type	NM
units	UG/KG
Pct_Solids	72
DUP_OF:	

Parameter	Result	ValQual	QualCode
ANTHRACENE	460	U	
BENZO(A)ANTHRACENE	34	J	P
BENZO(A)PYRENE	35	J	P
BENZO(B)FLUORANTHENE	46	J	P
BENZO(G,H,I)PERYLENE	460	U	
BENZO(K)FLUORANTHENE	460	U	
BIS(2-CHLOROETHOXY)METHA	460	U	
BIS(2-CHLOROETHYL)ETHER	460	U	
BIS(2-ETHYLHEXYL)PHTHALAT	93	J	P
BUTYL BENZYL PHTHALATE	460	U	
CARBAZOLE	460	U	
CHRYSENE	31	J	P
DI-N-BUTYL PHTHALATE	460	U	
DI-N-OCTYL PHTHALATE	460	U	
DIBENZO(A,H)ANTHRACENE	460	U	
DIBENZOFURAN	460	U	
DIETHYL PHTHALATE	460	U	
DIMETHYL PHTHALATE	460	U	
FLUORANTHENE	26	J	P
FLUORENE	460	U	
HEXACHLOROBENZENE	460	U	
HEXACHLOROBUTADIENE	460	U	
HEXACHLOROCYCLOPENTADI	460	U	
HEXACHLOROETHANE	460	U	
INDENO(1,2,3-CD)PYRENE	460	U	
ISOPHORONE	460	U	
N-NITROSO-DI-N-PROPYLAMIN	460	U	
N-NITROSODIPHENYLAMINE	460	U	
NAPHTHALENE	460	U	
NITROBENZENE	460	U	

nsample	AIC-SS-06
samp_date	7/19/2002
lab_id	WS1668-3
qc_type	NM
units	UG/KG
Pct_Solids	72
DUP_OF:	

Parameter	Result	ValQual	QualCode
PENTACHLOROPHENOL	1100	U	
PHENANTHRENE	460	U	
PHENOL	460	U	
PYRENE	36	J	P

PROJ_NO: 4277

SDG: 254-1 MEDIA: SOIL DATA FRACTION: OS

nsample	AIC-SS-07
samp_date	7/19/2002
lab_id	WS1668-4
qc_type	NM
units	UG/KG
Pct_Solids	73
DUP_OF:	

Parameter	Result	ValQual	QualCode
1,2,4-TRICHLOROBENZENE	890	U	
1,2-DICHLOROBENZENE	890	U	
1,3-DICHLOROBENZENE	890	U	
1,4-DICHLOROBENZENE	890	U	
2,2'-OXYBIS(1-CHLOROPROPA	890	U	
2,4,5-TRICHLOROPHENOL	2200	U	
2,4,6-TRICHLOROPHENOL	890	U	
2,4-DICHLOROPHENOL	890	U	
2,4-DIMETHYLPHENOL	890	U	
2,4-DINITROPHENOL	2200	U	
2,4-DINITROTOLUENE	890	U	
2,6-DINITROTOLUENE	890	U	
2-CHLORONAPHTHALENE	890	U	
2-CHLOROPHENOL	890	U	
2-METHYLNAPHTHALENE	890	U	
2-METHYLPHENOL	890	U	
2-NITROANILINE	2200	U	
2-NITROPHENOL	890	U	
3,3'-DICHLOROBENZIDINE	890	U	
3-NITROANILINE	2200	U	
4,6-DINITRO-2-METHYLPHENO	2200	U	
4-BROMOPHENYL PHENYL ET	890	U	
4-CHLORO-3-METHYLPHENOL	890	U	
4-CHLOROANILINE	890	U	
4-CHLOROPHENYL PHENYL ET	890	U	
4-METHYLPHENOL	890	U	
4-NITROANILINE	2200	U	
4-NITROPHENOL	2200	U	
ACENAPHTHENE	890	U	
ACENAPHTHYLENE	890	U	

nsample	AIC-SS-07
samp_date	7/19/2002
lab_id	WS1668-4
qc_type	NM
units	UG/KG
Pct_Solids	73
DUP_OF:	

Parameter	Result	ValQual	QualCode
ANTHRACENE	890	U	
BENZO(A)ANTHRACENE	46	J	P
BENZO(A)PYRENE	67	J	P
BENZO(B)FLUORANTHENE	110	J	P
BENZO(G,H,I)PERYLENE	890	U	
BENZO(K)FLUORANTHENE	890	U	
BIS(2-CHLOROETHOXY)METHA	890	U	
BIS(2-CHLOROETHYL)ETHER	890	U	
BIS(2-ETHYLHEXYL)PHTHALAT	2100		
BUTYL BENZYL PHTHALATE	890	U	
CARBAZOLE	890	U	
CHRYSENE	890	U	
DI-N-BUTYL PHTHALATE	890	U	
DI-N-OCTYL PHTHALATE	890	U	
DIBENZO(A,H)ANTHRACENE	890	U	
DIBENZOFURAN	890	U	
DIETHYL PHTHALATE	890	U	
DIMETHYL PHTHALATE	890	U	
FLUORANTHENE	890	U	
FLUORENE	890	U	
HEXACHLOROBENZENE	890	U	
HEXACHLOROBUTADIENE	890	U	
HEXACHLOROCYCLOPENTADI	890	U	
HEXACHLOROETHANE	890	U	
INDENO(1,2,3-CD)PYRENE	890	U	
ISOPHORONE	890	U	
N-NITROSO-DI-N-PROPYLAMIN	890	U	
N-NITROSODIPHENYLAMINE	890	U	
NAPHTHALENE	890	U	
NITROBENZENE	890	U	

nsample	AIC-SS-07
samp_date	7/19/2002
lab_id	WS1668-4
qc_type	NM
units	UG/KG
Pct_Solids	73
DUP_OF:	

Parameter	Result	ValQual	QualCode
PENTACHLOROPHENOL	2200	U	
PHENANTHRENE	890	U	
PHENOL	890	U	
PYRENE	890	U	

PROJ_NO: 4277

SDG: 254-1 MEDIA: SOIL DATA FRACTION: OS

nsample	AIC-SS-08
samp_date	7/19/2002
lab_id	WS1668-2
qc_type	NM
units	UG/KG
Pct_Solids	82
DUP_OF:	

Parameter	Result	ValQual	QualCode
1,2,4-TRICHLOROBENZENE	400	U	
1,2-DICHLOROBENZENE	400	U	
1,3-DICHLOROBENZENE	400	U	
1,4-DICHLOROBENZENE	400	U	
2,2'-OXYBIS(1-CHLOROPROPA	400	U	
2,4,5-TRICHLOROPHENOL	980	U	
2,4,6-TRICHLOROPHENOL	400	U	
2,4-DICHLOROPHENOL	400	U	
2,4-DIMETHYLPHENOL	400	U	
2,4-DINITROPHENOL	980	U	
2,4-DINITROTOLUENE	400	U	
2,6-DINITROTOLUENE	400	U	
2-CHLORONAPHTHALENE	400	U	
2-CHLOROPHENOL	400	U	
2-METHYLNAPHTHALENE	400	U	
2-METHYLPHENOL	400	U	
2-NITROANILINE	980	U	
2-NITROPHENOL	400	U	
3,3'-DICHLOROBENZIDINE	400	U	
3-NITROANILINE	980	U	
4,6-DINITRO-2-METHYLPHENO	980	U	
4-BROMOPHENYL PHENYL ET	400	U	
4-CHLORO-3-METHYLPHENOL	400	U	
4-CHLOROANILINE	400	U	
4-CHLOROPHENYL PHENYL ET	400	U	
4-METHYLPHENOL	400	U	
4-NITROANILINE	980	U	
4-NITROPHENOL	980	U	
ACENAPHTHENE	400	U	
ACENAPHTHYLENE	400	U	

nsample	AIC-SS-08
samp_date	7/19/2002
lab_id	WS1668-2
qc_type	NM
units	UG/KG
Pct_Solids	82
DUP_OF:	

Parameter	Result	ValQual	QualCode
ANTHRACENE	400	U	
BENZO(A)ANTHRACENE	29	J	P
BENZO(A)PYRENE	32	J	P
BENZO(B)FLUORANTHENE	54	J	P
BENZO(G,H,I)PERYLENE	400	U	
BENZO(K)FLUORANTHENE	400	U	
BIS(2-CHLOROETHOXY)METHA	400	U	
BIS(2-CHLOROETHYL)ETHER	400	U	
BIS(2-ETHYLHEXYL)PHTHALAT	530		
BUTYL BENZYL PHTHALATE	400	U	
CARBAZOLE	400	U	
CHRYSENE	30	J	P
DI-N-BUTYL PHTHALATE	400	U	
DI-N-OCTYL PHTHALATE	400	U	
DIBENZO(A,H)ANTHRACENE	400	U	
DIBENZOFURAN	400	U	
DIETHYL PHTHALATE	400	U	
DIMETHYL PHTHALATE	400	U	
FLUORANTHENE	26	J	P
FLUORENE	400	U	
HEXACHLOROBENZENE	400	U	
HEXACHLOROBUTADIENE	400	U	
HEXACHLOROCYCLOPENTADI	400	U	
HEXACHLOROETHANE	400	U	
INDENO(1,2,3-CD)PYRENE	400	U	
ISOPHORONE	400	U	
N-NITROSO-DI-N-PROPYLAMIN	400	U	
N-NITROSODIPHENYLAMINE	400	U	
NAPHTHALENE	400	U	
NITROBENZENE	400	U	

nsample	AIC-SS-08
samp_date	7/19/2002
lab_id	WS1668-2
qc_type	NM
units	UG/KG
Pct_Solids	82
DUP_OF:	

Parameter	Result	ValQual	QualCode
PENTACHLOROPHENOL	980	U	
PHENANTHRENE	400	U	
PHENOL	400	U	
PYRENE	29	J	P

PROJ_NO: 4277

SDG: 254-1 MEDIA: SOIL DATA FRACTION: PAH

nsample	AIC-SB-10
samp_date	7/17/2002
lab_id	WS1649-1
qc_type	NM
units	UG/KG
Pct_Solids	88
DUP_OF:	

Parameter	Result	ValQual	QualCode
1-METHYLNAPHTHALENE	110	U	
2-METHYLNAPHTHALENE	110	U	
ACENAPHTHENE	110	U	
ACENAPHTHYLENE	110	U	
ANTHRACENE	110	U	
BENZO(A)ANTHRACENE	33	J	P
BENZO(A)PYRENE	110	U	
BENZO(B)FLUORANTHENE	36	J	P
BENZO(G,H,I)PERYLENE	110	U	
BENZO(K)FLUORANTHENE	110	U	
CHRYSENE	110	U	
DIBENZO(A,H)ANTHRACENE	110	U	
FLUORANTHENE	48	J	P
FLUORENE	110	U	
INDENO(1,2,3-CD)PYRENE	110	U	
NAPHTHALENE	24	J	P
PHENANTHRENE	42	J	P
PYRENE	39	J	P

nsample	AIC-SB-15
samp_date	7/17/2002
lab_id	WS1649-2
qc_type	NM
units	UG/KG
Pct_Solids	89
DUP_OF:	

Parameter	Result	ValQual	QualCode
1-METHYLNAPHTHALENE	22	U	
2-METHYLNAPHTHALENE	22	U	
ACENAPHTHENE	22	U	
ACENAPHTHYLENE	22	U	
ANTHRACENE	22	U	
BENZO(A)ANTHRACENE	7	J	P
BENZO(A)PYRENE	22	U	
BENZO(B)FLUORANTHENE	22	U	
BENZO(G,H,I)PERYLENE	22	U	
BENZO(K)FLUORANTHENE	22	U	
CHRYSENE	22	U	
DIBENZO(A,H)ANTHRACENE	22	U	
FLUORANTHENE	22	U	
FLUORENE	22	U	
INDENO(1,2,3-CD)PYRENE	22	U	
NAPHTHALENE	22	U	
PHENANTHRENE	22	U	
PYRENE	6	J	P

nsample	AIC-SB-20
samp_date	7/17/2002
lab_id	WS1649-3
qc_type	NM
units	UG/KG
Pct_Solids	89
DUP_OF:	

Parameter	Result	ValQual	QualCode
1-METHYLNAPHTHALENE	22	U	
2-METHYLNAPHTHALENE	22	U	
ACENAPHTHENE	22	U	
ACENAPHTHYLENE	22	U	
ANTHRACENE	22	U	
BENZO(A)ANTHRACENE	10	J	P
BENZO(A)PYRENE	22	U	
BENZO(B)FLUORANTHENE	22	U	
BENZO(G,H,I)PERYLENE	22	U	
BENZO(K)FLUORANTHENE	22	U	
CHRYSENE	22	U	
DIBENZO(A,H)ANTHRACENE	22	U	
FLUORANTHENE	13	J	P
FLUORENE	22	U	
INDENO(1,2,3-CD)PYRENE	22	U	
NAPHTHALENE	22	U	
PHENANTHRENE	22	U	
PYRENE	12	J	P

PROJ_NO: 4277

SDG: 254-1 MEDIA: SOIL DATA FRACTION: PEST/PCB

nsample	AIC-SS-01
samp_date	7/17/2002
lab_id	WS1649-4
qc_type	NM
units	UG/KG
Pct_Solids	89
DUP_OF:	

Parameter	Result	ValQual	QualCode
4,4'-DDD	3.7	U	
4,4'-DDE	3.7	U	
4,4'-DDT	3.7	U	
ALDRIN	1.9	U	
ALPHA-BHC	1.9	U	
ALPHA-CHLORDANE	1.9	U	
AROCLOR-1016	19	U	
AROCLOR-1221	19	U	
AROCLOR-1232	19	U	
AROCLOR-1242	19	U	
AROCLOR-1248	19	U	
AROCLOR-1254	19	U	
AROCLOR-1260	19	U	
BETA-BHC	1.9	U	
DELTA-BHC	1.9	U	
DIELDRIN	3.7	U	
ENDOSULFAN I	1.9	U	
ENDOSULFAN II	3.7	U	
ENDOSULFAN SULFATE	3.7	U	
ENDRIN	3.7	U	
ENDRIN ALDEHYDE	3.7	U	
ENDRIN KETONE	3.7	U	
GAMMA-BHC (LINDANE)	1.9	U	
GAMMA-CHLORDANE	1.9	U	
HEPTACHLOR	1.9	U	
HEPTACHLOR EPOXIDE	1.9	U	
METHOXYCHLOR	19	U	
TOXAPHENE	37	U	

nsample	AIC-SS-02
samp_date	7/17/2002
lab_id	WS1649-5
qc_type	NM
units	UG/KG
Pct_Solids	87
DUP_OF:	

Parameter	Result	ValQual	QualCode
4,4'-DDD	3.8	U	
4,4'-DDE	3.8	U	
4,4'-DDT	3.8	U	
ALDRIN	1.9	U	
ALPHA-BHC	1.9	U	
ALPHA-CHLORDANE	1.9	U	
AROCLOR-1016	19	U	
AROCLOR-1221	19	U	
AROCLOR-1232	19	U	
AROCLOR-1242	19	U	
AROCLOR-1248	19	U	
AROCLOR-1254	19	U	
AROCLOR-1260	19	U	
BETA-BHC	1.9	U	
DELTA-BHC	1.9	U	
DIELDRIN	3.8	U	
ENDOSULFAN I	1.9	U	
ENDOSULFAN II	3.8	U	
ENDOSULFAN SULFATE	3.8	U	
ENDRIN	3.8	U	
ENDRIN ALDEHYDE	3.8	U	
ENDRIN KETONE	3.8	U	
GAMMA-BHC (LINDANE)	1.9	U	
GAMMA-CHLORDANE	1.9	U	
HEPTACHLOR	1.9	U	
HEPTACHLOR EPOXIDE	1.9	U	
METHOXYCHLOR	19	U	
TOXAPHENE	38	U	

nsample	AIC-SS-03
samp_date	7/17/2002
lab_id	WS1649-6
qc_type	NM
units	UG/KG
Pct_Solids	92
DUP_OF:	

Parameter	Result	ValQual	QualCode
4,4'-DDD	3.6	U	
4,4'-DDE	0.69	J	PU
4,4'-DDT	3.6	U	
ALDRIN	1.8	U	
ALPHA-BHC	1.8	U	
ALPHA-CHLORDANE	1.8	U	
AROCLOR-1016	18	U	
AROCLOR-1221	18	U	
AROCLOR-1232	18	U	
AROCLOR-1242	18	U	
AROCLOR-1248	18	U	
AROCLOR-1254	18	U	
AROCLOR-1260	18	U	
BETA-BHC	1.8	U	
DELTA-BHC	1.8	U	
DIELDRIN	3.6	U	
ENDOSULFAN I	1.8	U	
ENDOSULFAN II	3.6	U	
ENDOSULFAN SULFATE	3.6	U	
ENDRIN	3.6	U	
ENDRIN ALDEHYDE	3.6	U	
ENDRIN KETONE	3.6	U	
GAMMA-BHC (LINDANE)	1.8	U	
GAMMA-CHLORDANE	1.8	U	
HEPTACHLOR	1.8	U	
HEPTACHLOR EPOXIDE	1.8	U	
METHOXYCHLOR	18	U	
TOXAPHENE	36	U	

PROJ_NO: 4277

SDG: 254-1 MEDIA: SOIL DATA FRACTION: PEST/PCB

nsample	AIC-SS-04
samp_date	7/17/2002
lab_id	WS1649-7
qc_type	NM
units	UG/KG
Pct_Solids	91
DUP_OF:	

Parameter	Result	ValQual	QualCode
4,4'-DDD	3.6	U	
4,4'-DDE	3.6	U	
4,4'-DDT	3.6	U	
ALDRIN	1.9	U	
ALPHA-BHC	1.9	U	
ALPHA-CHLORDANE	1.9	U	
AROCLOR-1016	19	U	
AROCLOR-1221	19	U	
AROCLOR-1232	19	U	
AROCLOR-1242	19	U	
AROCLOR-1248	19	U	
AROCLOR-1254	19	U	
AROCLOR-1260	19	U	
BETA-BHC	1.9	U	
DELTA-BHC	1.9	U	
DIELDRIN	3.6	U	
ENDOSULFAN I	1.9	U	
ENDOSULFAN II	3.6	U	
ENDOSULFAN SULFATE	3.6	U	
ENDRIN	3.6	U	
ENDRIN ALDEHYDE	3.6	U	
ENDRIN KETONE	3.6	U	
GAMMA-BHC (LINDANE)	1.9	U	
GAMMA-CHLORDANE	1.9	U	
HEPTACHLOR	1.9	U	
HEPTACHLOR EPOXIDE	1.9	U	
METHOXYCHLOR	19	U	
TOXAPHENE	36	U	

nsample	AIC-SS-05
samp_date	7/19/2002
lab_id	WS1668-1
qc_type	NM
units	UG/KG
Pct_Solids	79
DUP_OF:	

Parameter	Result	ValQual	QualCode
4,4'-DDD	4.2	U	
4,4'-DDE	32		
4,4'-DDT	4.2	U	
ALDRIN	2.2	U	
ALPHA-BHC	2.2	U	
ALPHA-CHLORDANE	2.9	J	U
AROCLOR-1016	22	U	
AROCLOR-1221	22	U	
AROCLOR-1232	22	U	
AROCLOR-1242	22	U	
AROCLOR-1248	22	U	
AROCLOR-1254	520		
AROCLOR-1260	550		
BETA-BHC	2.2	U	
DELTA-BHC	2.2	U	
DIELDRIN	4.2	U	
ENDOSULFAN I	2.2	U	
ENDOSULFAN II	4.2	U	
ENDOSULFAN SULFATE	4.2	U	
ENDRIN	4.2	U	
ENDRIN ALDEHYDE	4.2	U	
ENDRIN KETONE	4.2	U	
GAMMA-BHC (LINDANE)	2.2	U	
GAMMA-CHLORDANE	2.2	U	
HEPTACHLOR	2.2	U	
HEPTACHLOR EPOXIDE	10	J	U
METHOXYCHLOR	22	U	
TOXAPHENE	42	U	

nsample	AIC-SS-06
samp_date	7/19/2002
lab_id	WS1668-3
qc_type	NM
units	UG/KG
Pct_Solids	72
DUP_OF:	

Parameter	Result	ValQual	QualCode
4,4'-DDD	4.6	U	
4,4'-DDE	65		
4,4'-DDT	63	J	U
ALDRIN	2.4	U	
ALPHA-BHC	2.4	U	
ALPHA-CHLORDANE	0.76	J	P
AROCLOR-1016	24	U	
AROCLOR-1221	24	U	
AROCLOR-1232	24	U	
AROCLOR-1242	24	U	
AROCLOR-1248	24	U	
AROCLOR-1254	55	J	U
AROCLOR-1260	420		
BETA-BHC	2.4	U	
DELTA-BHC	2.4	U	
DIELDRIN	4.6	U	
ENDOSULFAN I	2.4	U	
ENDOSULFAN II	4.6	U	
ENDOSULFAN SULFATE	4.6	U	
ENDRIN	4.6	U	
ENDRIN ALDEHYDE	4.6	U	
ENDRIN KETONE	4.6	U	
GAMMA-BHC (LINDANE)	2.4	U	
GAMMA-CHLORDANE	2.4	U	
HEPTACHLOR	2.4	U	
HEPTACHLOR EPOXIDE	2.4	U	
METHOXYCHLOR	24	U	
TOXAPHENE	46	U	

PROJ_NO: 4277

SDG: 254-1 MEDIA: SOIL DATA FRACTION: PEST/PCB

nsample	AIC-SS-07
samp_date	7/19/2002
lab_id	WS1668-4
qc_type	NM
units	UG/KG
Pct_Solids	73
DUP_OF:	

Parameter	Result	ValQual	QualCode
4,4'-DDD	90	U	
4,4'-DDE	90	U	
4,4'-DDT	90	U	
ALDRIN	46	U	
ALPHA-BHC	46	U	
ALPHA-CHLORDANE	46	U	
AROCLOR-1016	460	U	
AROCLOR-1221	460	U	
AROCLOR-1232	460	U	
AROCLOR-1242	460	U	
AROCLOR-1248	460	U	
AROCLOR-1254	23000		
AROCLOR-1260	2700		
BETA-BHC	46	U	
DELTA-BHC	46	U	
DIELDRIN	90	U	
ENDOSULFAN I	46	U	
ENDOSULFAN II	90	U	
ENDOSULFAN SULFATE	90	U	
ENDRIN	90	U	
ENDRIN ALDEHYDE	90	U	
ENDRIN KETONE	90	U	
GAMMA-BHC (LINDANE)	46	U	
GAMMA-CHLORDANE	46	U	
HEPTACHLOR	46	U	
HEPTACHLOR EPOXIDE	46	U	
METHOXYCHLOR	460	U	
TOXAPHENE	900	U	

nsample	AIC-SS-08
samp_date	7/19/2002
lab_id	WS1668-2
qc_type	NM
units	UG/KG
Pct_Solids	82
DUP_OF:	

Parameter	Result	ValQual	QualCode
4,4'-DDD	8.1	U	
4,4'-DDE	110		
4,4'-DDT	8.1	U	
ALDRIN	4.2	U	
ALPHA-BHC	4.2	U	
ALPHA-CHLORDANE	4.2	U	
AROCLOR-1016	42	U	
AROCLOR-1221	42	U	
AROCLOR-1232	42	U	
AROCLOR-1242	42	U	
AROCLOR-1248	42	U	
AROCLOR-1254	1800		
AROCLOR-1260	750		
BETA-BHC	4.2	U	
DELTA-BHC	4.2	U	
DIELDRIN	8.1	U	
ENDOSULFAN I	4.2	U	
ENDOSULFAN II	8.1	U	
ENDOSULFAN SULFATE	8.1	U	
ENDRIN	8.1	U	
ENDRIN ALDEHYDE	8.1	U	
ENDRIN KETONE	8.1	U	
GAMMA-BHC (LINDANE)	4.2	U	
GAMMA-CHLORDANE	4.2	U	
HEPTACHLOR	4.2	U	
HEPTACHLOR EPOXIDE	4.2	U	
METHOXYCHLOR	42	U	
TOXAPHENE	81	U	

PROJ_NO: 4277

SDG: 254-1 MEDIA: SOIL DATA FRACTION: PET

nsample	AIC-SB-10
samp_date	7/17/02
lab_id	WS1649-1
qc_type	NM
units	MG/KG
Pct_Solids	88
DUP_OF:	

Parameter	Result	Val Qual	Qual Code
TOTAL PETROLEUM HYDROCARBONS	130		

nsample	AIC-SB-15
samp_date	7/17/02
lab_id	WS1649-2
qc_type	NM
units	MG/KG
Pct_Solids	89
DUP_OF:	

Parameter	Result	Val Qual	Qual Code
TOTAL PETROLEUM HYDROCARBONS	110	u	A

nsample	AIC-SB-20
samp_date	7/17/02
lab_id	WS1649-3
qc_type	NM
units	MG/KG
Pct_Solids	89
DUP_OF:	

Parameter	Result	Val Qual	Qual Code
TOTAL PETROLEUM HYDROCARBONS	110	U	A

PROJ_NO: 4277

SDG: 254-1 MEDIA: SOIL DATA FRACTION: DIOX

nsample	AIC-SS-05
samp_date	7/19/2002
lab_id	49305
qc_type	NM
units	NG/KG
Pct_Solids	81.67
DUP_OF:	

Parameter	Result	ValQual	QualCode
1,2,3,4,6,7,8,9-OCDD	9420	J	L
1,2,3,4,6,7,8,9-OCDF	278		
1,2,3,4,6,7,8-HPCDD	769		
1,2,3,4,6,7,8-HPCDF	110		
1,2,3,4,7,8,9-HPCDF	4.4		
1,2,3,4,7,8-HXCDD	3.95		
1,2,3,4,7,8-HXCDF	7.89		
1,2,3,6,7,8-HXCDD	15.4		
1,2,3,6,7,8-HXCDF	2.98		
1,2,3,7,8,9-HXCDD	5.67		
1,2,3,7,8,9-HXCDF	0.864		
1,2,3,7,8-PECDD	0.65	U	W
1,2,3,7,8-PECDF	7.72		
2,3,4,6,7,8-HXCDF	5.18		
2,3,4,7,8-PECDF	3.14		
2,3,7,8-TCDD	0.456		
2,3,7,8-TCDF	4.58		
TOTAL HPCDD	1860		
TOTAL HPCDF	336		
TOTAL HXCDD	192		
TOTAL HXCDF	120		
TOTAL PECDD	17.1		
TOTAL PECDF	57.4		
TOTAL TCDD	5.2		
TOTAL TCDF	26.7		

nsample	AIC-SS-06
samp_date	7/19/2002
lab_id	49308
qc_type	NM
units	NG/KG
Pct_Solids	80.27
DUP_OF:	

Parameter	Result	ValQual	QualCode
1,2,3,4,6,7,8,9-OCDD	15700	J	L
1,2,3,4,6,7,8,9-OCDF	516		
1,2,3,4,6,7,8-HPCDD	1250	J	L
1,2,3,4,6,7,8-HPCDF	146		
1,2,3,4,7,8,9-HPCDF	6.26		
1,2,3,4,7,8-HXCDD	3.26		
1,2,3,4,7,8-HXCDF	7.65		
1,2,3,6,7,8-HXCDD	20.8		
1,2,3,6,7,8-HXCDF	3.39		
1,2,3,7,8,9-HXCDD	5.79		
1,2,3,7,8,9-HXCDF	1.1		
1,2,3,7,8-PECDD	1.29	U	W
1,2,3,7,8-PECDF	1.73		
2,3,4,6,7,8-HXCDF	5.24		
2,3,4,7,8-PECDF	2.5		
2,3,7,8-TCDD	0.757	U	W
2,3,7,8-TCDF	1.54		
TOTAL HPCDD	4350		
TOTAL HPCDF	538		
TOTAL HXCDD	258		
TOTAL HXCDF	144		
TOTAL PECDD	8.71		
TOTAL PECDF	35.6		
TOTAL TCDD	1.51		
TOTAL TCDF	9.58		

nsample	AIC-SS-07
samp_date	7/19/2002
lab_id	49307
qc_type	NM
units	NG/KG
Pct_Solids	56.8
DUP_OF:	

Parameter	Result	ValQual	QualCode
1,2,3,4,6,7,8,9-OCDD	34400	J	L
1,2,3,4,6,7,8,9-OCDF	696		
1,2,3,4,6,7,8-HPCDD	2770	J	L
1,2,3,4,6,7,8-HPCDF	316		
1,2,3,4,7,8,9-HPCDF	20.4		
1,2,3,4,7,8-HXCDD	11.5		
1,2,3,4,7,8-HXCDF	65.1		
1,2,3,6,7,8-HXCDD	50.1		
1,2,3,6,7,8-HXCDF	23.1		
1,2,3,7,8,9-HXCDD	13.8		
1,2,3,7,8,9-HXCDF	11.9		
1,2,3,7,8-PECDD	2.31	U	W
1,2,3,7,8-PECDF	37.4		
2,3,4,6,7,8-HXCDF	20.5		
2,3,4,7,8-PECDF	30.4		
2,3,7,8-TCDD	0.743		
2,3,7,8-TCDF	46.5		
TOTAL HPCDD	7680		
TOTAL HPCDF	963		
TOTAL HXCDD	948		
TOTAL HXCDF	456		
TOTAL PECDD	50.1		
TOTAL PECDF	304		
TOTAL TCDD	12.9		
TOTAL TCDF	286		

PROJ_NO: 4277

SDG: 254-1 MEDIA: SOIL DATA FRACTION: DIOX

nsample	AIC-SS-08
samp_date	7/19/2002
lab_id	49306
qc_type	NM
units	NG/KG
Pct_Solids	75.67
DUP_OF:	

Parameter	Result	ValQual	QualCode
1,2,3,4,6,7,8,9-OCDD	16600	J	L
1,2,3,4,6,7,8,9-OCDF	428		
1,2,3,4,6,7,8-HPCDD	1450	J	L
1,2,3,4,6,7,8-HPCDF	181		
1,2,3,4,7,8,9-HPCDF	6.58		
1,2,3,4,7,8-HXCDD	7.81		
1,2,3,4,7,8-HXCDF	19.5		
1,2,3,6,7,8-HXCDD	28.4		
1,2,3,6,7,8-HXCDF	6.82		
1,2,3,7,8,9-HXCDD	13.8		
1,2,3,7,8,9-HXCDF	2.49		
1,2,3,7,8-PECDD	2.44	U	W
1,2,3,7,8-PECDF	35.1		
2,3,4,6,7,8-HXCDF	10.2		
2,3,4,7,8-PECDF	6.36		
2,3,7,8-TCDD	0.872		
2,3,7,8-TCDF	10.6		
TOTAL HPCDD	3500		
TOTAL HPCDF	526		
TOTAL HXCDD	457		
TOTAL HXCDF	218		
TOTAL PECDD	24.1		
TOTAL PECDF	182		
TOTAL TCDD	3.6		
TOTAL TCDF	125		

PROJ_NO: 4277

SDG: 254-1 MEDIA: SOIL DATA FRACTION: PET

nsample	AIC-SB-10
samp_date	7/17/2002
lab_id	WS1649-1
qc_type	NM
units	MG/KG
Pct_Solids	88
DUP_OF:	

Parameter	Result	ValQual	QualCode
TOTAL PETROLEUM HYDROCA	130		

nsample	AIC-SB-15
samp_date	7/17/2002
lab_id	WS1649-2
qc_type	NM
units	MG/KG
Pct_Solids	89
DUP_OF:	

Parameter	Result	ValQual	QualCode
TOTAL PETROLEUM HYDROCA	110		

nsample	AIC-SB-20
samp_date	7/17/2002
lab_id	WS1649-3
qc_type	NM
units	MG/KG
Pct_Solids	89
DUP_OF:	

Parameter	Result	ValQual	QualCode
TOTAL PETROLEUM HYDROCA	110		

Tetra Tech NUS **INTERNAL CORRESPONDENCE**

TO:	**C. BRYAN**	**DATE:**	**SEPTEMBER 30, 2002**
FROM:	**BERNARD F SPADA III**	**COPIES:**	**DV FILE**

SUBJECT: **ORGANIC DATA VALIDATION- VOA/OVG/PAH/TPH**
CTO 254, NAS KEY WEST
SDG 254-2

SAMPLES: 8/Aqueous

AIC-DUP-02-0702	AIC-MW-01-0702*	AIC-MW-02-0702
AIC-MW-03-0702*	AIC-MW-04-0702*	AIC-MW-05D-0702
TRIP BLANK-072502	TRIP BLANK-072502	

OVERVIEW

The sample set for CTO 254, NAS Key West, SDG 254-2 consists of five (5) environmental aqueous samples, one (1) field duplicate, and two (2) trip blanks. All samples were analyzed for volatile organic compounds (VOC) by SW-846 Method 8260B. All environmental samples were also analyzed for ethylene dibromide by EPA Method 504.1, polynuclear aromatic hydrocarbons (PAH) by SW-846 Method 8270C SIM, and total petroleum hydrocarbons (TPH) by Florida-PRO Method. The samples denoted with an asterisk (*) were also analyzed for methane by Method RSK-175. The field duplicate pair included in this SDG is AIC-DUP-02-0702 and AIC-MW-02-0702.

The samples were collected by TetraTech NUS on July 19, 24, and 25, 2002 and analyzed by Katahdin Analytical Services. All analyses were conducted in accordance with Naval Facilities Engineering Service Center (NFESC) Quality Assurance/Quality Control (QA/QC) criteria using Methods 8260B, 8270C SIM, EPA 504.1, Florida PRO, and RSK-175 analytical and reporting protocols. The data contained in this SDG were validated with regard to the following parameters:

* • Data completeness
* • Holding times
• Initial and continuing calibration
• Laboratory method and field quality control 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.

The text of this report is formulated to address only gross non-compliances resulting in the rejection of data and the elimination of false positives.

Volatile Organic Compounds

The initial calibration performed on the 5972-M instrument exceeded the 50% relative standard deviation (RSD) quality control criteria for methylene chloride. All non-detected results for methylene chloride reported from the 5972-M instrument were qualified as estimated (UJ).

The continuing calibration performed on the 5972-S instrument on July 29 exceeded the 50% difference (%D) quality control criteria for bromomethane and carbon tetrachloride. The non-detected results for the aforementioned compounds in sample TRIP BLANK-072502 were qualified as estimated (UJ).

The following compounds were detected in the method blank:

Compound	Maximum Concentration	Blank Action Level
Methylene Chloride	1.0 ug/L	10 ug/L
Chloroform	0.9 ug/L	4.5 ug/L

Sample volume and dilution factors were taken into consideration when applying the blank action levels. The positive result for chloroform below the blank action level was qualified as non-detected, U. Quality control samples were not qualified due to blank contamination.

The internal standard 1,4-dichlorobenzene-d4 was below the 10% recovery quality control criteria in sample AIC-MW-04-0702. The non-detected result for 1,1,2,2-tetrachloroethane was rejected (UR).

Methane

None.

PAH

The continuing calibration performed on August 9 exceeded the 50%D quality control criteria for naphthalene and 1-methylnaphthalene. The only samples associated with this continuing calibration were those that required a dilution. All results for 1-methylnaphtalene in the diluted samples were qualified as estimated (J).

Samples AIC-DUP-02-0702, AIC-MW-02-0702, and AIC-MW-03-0702 exceeded the linear calibration range of the instrument for 1-methylnaphthalene and 2-methylnaphthalene. The samples were re-analyzed at a dilution. The results from the diluted analysis were transposed to the undiluted analysis and used for validation.

Sample AIC-MW-03-0702-2DL was below the 50% recovery quality control criteria for the internal standards chrysene-d12 and perylene-d12. The sample was re-extracted and re-analyzed with similar results. No action was taken because only results for 1&2-methylnaphthalene were used from the dilution and they were not associated with the aforementioned internal standards.

The surrogate nitrobenzene-d5 was below the 30% recovery quality control criteria in sample AIC-MW-02-0702-DL1. The sample was re-extracted and re-analyzed with acceptable results. The results from the re-extracted sample (AIC-MW-02-0702-DL2) for 1&2-methylnaphthalene were transposed to the undiluted analysis and used for validation.

The blank spike and blank spike duplicate samples were not spiked with 1-methylnaphthalene. This made it impossible to evaluate the recovery of 1-methylnaphthalene.

The results for acenaphthene and fluorene exceeded the 50%D quality control criteria for field duplicate imprecision in samples AIC-DUP-02-0702 and AIC-MW-02-0702. The results were qualified as estimated (J).

TPH

No qualification of the data was necessary.

Additional Comments

Positive results reported below the RL but above the MDL were qualified as estimated (J).

EXECUTIVE SUMMARY

Laboratory Performance Issues: Qualifications were made based on calibration non-compliances, method blank contamination, and internal standard non-compliances.

Other Factors Affecting Data Quality: None.

The data for these analyses were reviewed with reference to the EPA Functional Guidelines for Organic Data Validation (10/99) and the NFESC guidelines. 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 NFESC guidelines and the Quality Assurance Project Plan (QAPP)."

Tetra Tech NUS
Bernard F. Spada III
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

Qualifier Codes:

A = Lab Blank Contamination
B = Field Blank Contamination
C = Calibration (i.e., % RSDs, %Ds, ICVs, CCVs, RPDs, RRFs, etc.) Noncompliance
D = MS/MSD Noncompliance
E = LCS/LCSD 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 - include ICSAB % R's
L = Instrument Calibration Range Exceedance
M = Sample Preservation
N = Internal Standard Noncompliance
N01 = Internal Standard Noncompliance Dioxins
N02 = Recovery Standard Noncompliance Dioxins
N03 = Clean-up Standard Noncompliance Dioxins
O = Poor Instrument Performance (i.e., base-time drifting)
P = Uncertainty near detection limit (< 2 x IDL for inorganics and <CRQL for organics)
Q = Other problems (can encompass a number of issues)
R = Surrogates Recovery Noncompliance
S = Pesticide/PCB Resolution
T = % Breakdown Noncompliance for DDT and Endrin
U = Pest/PCD% between columns for positive results
V = Non-linear calibrations, tuning $r < 0.995$ (correlation coefficient)
W = EMPC result
X = Signal to noise response drop
Y = Percent solids <30%
Z = Uncertainty at 2 sigma deviation is less than sample activity

PROJ_NO: 4260

SDG: 254-2 MEDIA: WATER DATA FRACTION: OV

nsample	AIC-DUP-02-0702
samp_date	7/24/2002
lab_id	WS1689-3
qc_type	NM
units	UG/L
Pct_Solids	0
DUP_OF:	AIC-MW-02-0702

Parameter	Result	Val Qual	Qual Code
1,1,1-TRICHLOROETHANE	1	U	
1,1,2,2-TETRACHLOROETHANE	1	U	
1,1,2-TRICHLOROETHANE	1	U	
1,1-DICHLOROETHANE	1	U	
1,1-DICHLOROETHENE	1	U	
1,2-DIBROMOETHANE	0.02	U	
1,2-DICHLOROETHANE	1	U	
1,2-DICHLOROPROPANE	1	U	
2-CHLOROETHYL VINYL ETHER	10	U	
BENZENE	1	U	
BROMODICHLOROMETHANE	1	U	
BROMOFORM	1	U	
BROMOMETHANE	2	U	
CARBON TETRACHLORIDE	1	U	
CHLOROBENZENE	1	U	
CHLORODIBROMOMETHANE	1	U	
CHLOROETHANE	2	U	
CHLOROFORM	1	U	
CHLOROMETHANE	0.7	J	P
CIS-1,2-DICHLOROETHENE	1	U	
CIS-1,3-DICHLOROPROPENE	1	U	
ETHYLBENZENE	0.7	J	P
METHYL TERT-BUTYL ETHER	0.6	J	GP
METHYLENE CHLORIDE	1	U	
TETRACHLOROETHENE	1	U	
TOLUENE	1	U	
TOTAL XYLENES	5	U	
TRANS-1,2-DICHLOROETHENE	1	U	
TRANS-1,3-DICHLOROPROPENE	1	U	
TRICHLOROETHENE	1	U	

nsample	AIC-DUP-02-0702
samp_date	7/24/2002
lab_id	WS1689-3
qc_type	NM
units	UG/L
Pct_Solids	0
DUP_OF:	AIC-MW-02-0702

Parameter	Result	Val Qual	Qual Code
VINYL CHLORIDE	2	U	

nsample	AIC-MW-01-0702
samp_date	7/25/2002
lab_id	WS1696-1
qc_type	NM
units	UG/L
Pct_Solids	0
DUP_OF:	

Parameter	Result	Val Qual	Qual Code
1,1,1-TRICHLOROETHANE	1	U	
1,1,2,2-TETRACHLOROETHANE	1	U	
1,1,2-TRICHLOROETHANE	1	U	
1,1-DICHLOROETHANE	1	U	
1,1-DICHLOROETHENE	1	U	
1,2-DIBROMOETHANE	0.02	U	
1,2-DICHLOROETHANE	1	U	
1,2-DICHLOROPROPANE	1	U	
2-CHLOROETHYL VINYL ETHER	10	U	
BENZENE	1	U	
BROMODICHLOROMETHANE	1	U	
BROMOFORM	1	U	
BROMOMETHANE	2	U	
CARBON TETRACHLORIDE	1	U	
CHLOROBENZENE	1	U	
CHLORODIBROMOMETHANE	1	U	
CHLOROETHANE	2	U	
CHLOROFORM	1	U	
CHLOROMETHANE	2	U	
CIS-1,2-DICHLOROETHENE	1	U	
CIS-1,3-DICHLOROPROPENE	1	U	
ETHYLBENZENE	1	U	
METHYL TERT-BUTYL ETHER	2	U	
METHYLENE CHLORIDE	1	UJ	C
TETRACHLOROETHENE	1	U	
TOLUENE	1	U	
TOTAL XYLENES	5	U	
TRANS-1,2-DICHLOROETHENE	1	U	
TRANS-1,3-DICHLOROPROPENE	1	U	
TRICHLOROETHENE	1	U	

PROJ_NO: 4260

SDG: 254-2 MEDIA: WATER DATA FRACTION: OV

nsample	AIC-MW-01-0702
samp_date	7/25/2002
lab_id	WS1696-1
qc_type	NM
units	UG/L
Pct_Solids	0
DUP_OF:	

Parameter	Result	Val Qual	Qual Code
VINYL CHLORIDE	2	U	

nsample	AIC-MW-02-0702
samp_date	7/24/2002
lab_id	WS1689-1
qc_type	NM
units	UG/L
Pct_Solids	0
DUP_OF:	

Parameter	Result	Val Qual	Qual Code
1,1,1-TRICHLOROETHANE	1	U	
1,1,2,2-TETRACHLOROETHANE	1	U	
1,1,2-TRICHLOROETHANE	1	U	
1,1-DICHLOROETHANE	1	U	
1,1-DICHLOROETHENE	1	U	
1,2-DIBROMOETHANE	0.02	U	
1,2-DICHLOROETHANE	1	U	
1,2-DICHLOROPROPANE	1	U	
2-CHLOROETHYL VINYL ETHER	10	U	
BENZENE	1	U	
BROMODICHLOROMETHANE	1	U	
BROMOFORM	1	U	
BROMOMETHANE	2	U	
CARBON TETRACHLORIDE	1	U	
CHLOROBENZENE	1	U	
CHLORODIBROMOMETHANE	1	U	
CHLOROETHANE	2	U	
CHLOROFORM	1	U	
CHLOROMETHANE	2	U	
CIS-1,2-DICHLOROETHENE	1	U	
CIS-1,3-DICHLOROPROPENE	1	U	
ETHYLBENZENE	1	U	
METHYL TERT-BUTYL ETHER	0.9	J	GP
METHYLENE CHLORIDE	1	U	
TETRACHLOROETHENE	1	U	
TOLUENE	1	U	
TOTAL XYLENES	5	U	
TRANS-1,2-DICHLOROETHENE	1	U	
TRANS-1,3-DICHLOROPROPENE	1	U	
TRICHLOROETHENE	1	U	

nsample	AIC-MW-02-0702
samp_date	7/24/2002
lab_id	WS1689-1
qc_type	NM
units	UG/L
Pct_Solids	0
DUP_OF:	

Parameter	Result	Val Qual	Qual Code
VINYL CHLORIDE	2	U	

PROJ_NO: 4260

SDG: 254-2 MEDIA: WATER DATA FRACTION: OV

nsample	AIC-MW-03-0702
samp_date	7/25/2002
lab_id	WS1696-2
qc_type	NM
units	UG/L
Pct_Solids	0
DUP_OF:	

Parameter	Result	Val Qual	Qual Code
1,1,1-TRICHLOROETHANE	1	U	
1,1,2,2-TETRACHLOROETHANE	1	U	
1,1,2-TRICHLOROETHANE	1	U	
1,1-DICHLOROETHANE	1	U	
1,1-DICHLOROETHENE	1	U	
1,2-DIBROMOETHANE	0.02	U	
1,2-DICHLOROETHANE	1	U	
1,2-DICHLOROPROPANE	1	U	
2-CHLOROETHYL VINYL ETHER	10	U	
BENZENE	1	U	
BROMODICHLOROMETHANE	1	U	
BROMOFORM	1	U	
BROMOMETHANE	2	U	
CARBON TETRACHLORIDE	1	U	
CHLOROBENZENE	1	U	
CHLORODIBROMOMETHANE	1	U	
CHLOROETHANE	2	U	
CHLOROFORM	1	U	
CHLOROMETHANE	2	U	
CIS-1,2-DICHLOROETHENE	1	U	
CIS-1,3-DICHLOROPROPENE	1	U	
ETHYLBENZENE	3		
METHYL TERT-BUTYL ETHER	0.3	J	P
METHYLENE CHLORIDE	1	UJ	C
TETRACHLOROETHENE	1	U	
TOLUENE	1	U	
TOTAL XYLENES	5	U	
TRANS-1,2-DICHLOROETHENE	1	U	
TRANS-1,3-DICHLOROPROPENE	1	U	
TRICHLOROETHENE	1	U	

nsample	AIC-MW-03-0702
samp_date	7/25/2002
lab_id	WS1696-2
qc_type	NM
units	UG/L
Pct_Solids	0
DUP_OF:	

Parameter	Result	Val Qual	Qual Code
VINYL CHLORIDE	2	U	

nsample	AIC-MW-04-0702
samp_date	7/25/2002
lab_id	WS1696-3
qc_type	NM
units	UG/L
Pct_Solids	0
DUP_OF:	

Parameter	Result	Val Qual	Qual Code
1,1,1-TRICHLOROETHANE	1	U	
1,1,2,2-TETRACHLOROETHANE	1	UR	N
1,1,2-TRICHLOROETHANE	1	U	
1,1-DICHLOROETHANE	1	U	
1,1-DICHLOROETHENE	1	U	
1,2-DIBROMOETHANE	0.02	U	
1,2-DICHLOROETHANE	1	U	
1,2-DICHLOROPROPANE	1	U	
2-CHLOROETHYL VINYL ETHER	10	U	
BENZENE	1	U	
BROMODICHLOROMETHANE	1	U	
BROMOFORM	1	U	
BROMOMETHANE	2	U	
CARBON TETRACHLORIDE	1	U	
CHLOROBENZENE	1	U	
CHLORODIBROMOMETHANE	1	U	
CHLOROETHANE	2	U	
CHLOROFORM	1	U	
CHLOROMETHANE	2	U	
CIS-1,2-DICHLOROETHENE	1	U	
CIS-1,3-DICHLOROPROPENE	1	U	
ETHYLBENZENE	1	U	
METHYL TERT-BUTYL ETHER	2	U	
METHYLENE CHLORIDE	1	UJ	C
TETRACHLOROETHENE	1	U	
TOLUENE	1	U	
TOTAL XYLENES	5	U	
TRANS-1,2-DICHLOROETHENE	1	U	
TRANS-1,3-DICHLOROPROPENE	1	U	
TRICHLOROETHENE	1	U	

PROJ_NO: 4260

SDG: 254-2 MEDIA: WATER DATA FRACTION: OV

nsample	AIC-MW-04-0702
samp_date	7/25/2002
lab_id	WS1696-3
qc_type	NM
units	UG/L
Pct_Solids	0
DUP_OF:	

Parameter	Result	Val Qual	Qual Code
VINYL CHLORIDE	2	U	

nsample	AIC-MW-05D-0702
samp_date	7/24/2002
lab_id	WS1689-2
qc_type	NM
units	UG/L
Pct_Solids	0
DUP_OF:	

Parameter	Result	Val Qual	Qual Code
1,1,1-TRICHLOROETHANE	1	U	
1,1,2,2-TETRACHLOROETHANE	1	U	
1,1,2-TRICHLOROETHANE	1	U	
1,1-DICHLOROETHANE	1	U	
1,1-DICHLOROETHENE	1	U	
1,2-DIBROMOETHANE	0.02	U	
1,2-DICHLOROETHANE	1	U	
1,2-DICHLOROPROPANE	1	U	
2-CHLOROETHYL VINYL ETHER	10	U	
BENZENE	1	U	
BROMODICHLOROMETHANE	0.7	J	P
BROMOFORM	1	U	
BROMOMETHANE	2	U	
CARBON TETRACHLORIDE	1	U	
CHLOROBENZENE	1	U	
CHLORODIBROMOMETHANE	0.8	J	P
CHLOROETHANE	2	U	
CHLOROFORM	0.6	U	A
CHLOROMETHANE	2	U	
CIS-1,2-DICHLOROETHENE	1	U	
CIS-1,3-DICHLOROPROPENE	1	U	
ETHYLBENZENE	1	U	
METHYL TERT-BUTYL ETHER	2	U	
METHYLENE CHLORIDE	1	U	
TETRACHLOROETHENE	1	U	
TOLUENE	1	U	
TOTAL XYLENES	5	U	
TRANS-1,2-DICHLOROETHENE	1	U	
TRANS-1,3-DICHLOROPROPENE	1	U	
TRICHLOROETHENE	1	U	

nsample	AIC-MW-05D-0702
samp_date	7/24/2002
lab_id	WS1689-2
qc_type	NM
units	UG/L
Pct_Solids	0
DUP_OF:	

Parameter	Result	Val Qual	Qual Code
VINYL CHLORIDE	2	U	

PROJ_NO: 4260

SDG: 254-2 MEDIA: WATER DATA FRACTION: OV

nsample	TRIP BLANK-072402
samp_date	7/11/2002
lab_id	WS1689-4
qc_type	NM
units	UG/L
Pct_Solids	0
DUP_OF:	

Parameter	Result	Val Qual	Qual Code
1,1,1-TRICHLOROETHANE	1	U	
1,1,2,2-TETRACHLOROETHANE	1	U	
1,1,2-TRICHLOROETHANE	1	U	
1,1-DICHLOROETHANE	1	U	
1,1-DICHLOROETHENE	1	U	
1,2-DICHLOROETHANE	1	U	
1,2-DICHLOROPROPANE	1	U	
2-CHLOROETHYL VINYL ETHER	10	U	
BENZENE	1	U	
BROMODICHLOROMETHANE	1	U	
BROMOFORM	1	U	
BROMOMETHANE	2	U	
CARBON TETRACHLORIDE	1	U	
CHLOROBENZENE	1	U	
CHLORODIBROMOMETHANE	1	U	
CHLOROETHANE	2	U	
CHLOROFORM	1	U	
CHLOROMETHANE	2	U	
CIS-1,2-DICHLOROETHENE	1	U	
CIS-1,3-DICHLOROPROPENE	1	U	
ETHYLBENZENE	1	U	
METHYL TERT-BUTYL ETHER	2	U	
METHYLENE CHLORIDE	3		
TETRACHLOROETHENE	1	U	
TOLUENE	1	U	
TOTAL XYLENES	5	U	
TRANS-1,2-DICHLOROETHENE	1	U	
TRANS-1,3-DICHLOROPROPENE	1	U	
TRICHLOROETHENE	1	U	
VINYL CHLORIDE	2	U	

nsample	TRIP BLANK-072502
samp_date	7/11/2002
lab_id	WS1696-4
qc_type	NM
units	UG/L
Pct_Solids	0
DUP_OF:	

Parameter	Result	Val Qual	Qual Code
1,1,1-TRICHLOROETHANE	1	U	
1,1,2,2-TETRACHLOROETHANE	1	U	
1,1,2-TRICHLOROETHANE	1	U	
1,1-DICHLOROETHANE	1	U	
1,1-DICHLOROETHENE	1	U	
1,2-DICHLOROETHANE	1	U	
1,2-DICHLOROPROPANE	1	U	
2-CHLOROETHYL VINYL ETHER	10	U	
BENZENE	1	U	
BROMODICHLOROMETHANE	1	U	
BROMOFORM	1	U	
BROMOMETHANE	2	UJ	C
CARBON TETRACHLORIDE	1	UJ	C
CHLOROBENZENE	1	U	
CHLORODIBROMOMETHANE	1	U	
CHLOROETHANE	2	U	
CHLOROFORM	1	U	
CHLOROMETHANE	2	U	
CIS-1,2-DICHLOROETHENE	1	U	
CIS-1,3-DICHLOROPROPENE	1	U	
ETHYLBENZENE	1	U	
METHYL TERT-BUTYL ETHER	2	U	
METHYLENE CHLORIDE	3		
TETRACHLOROETHENE	1	U	
TOLUENE	1	U	
TOTAL XYLENES	5	U	
TRANS-1,2-DICHLOROETHENE	1	U	
TRANS-1,3-DICHLOROPROPENE	1	U	
TRICHLOROETHENE	1	U	
VINYL CHLORIDE	2	U	

PROJ_NO: 4260

SDG: 254-2 MEDIA: WATER DATA FRACTION: OVG

nsample	AIC-MW-01-0702
samp_date	7/24/2002
lab_id	0207645-01A
qc_type	NM
units	UG/ML
Pct_Solids	0
DUP_OF:	

Parameter	Result	ValQual	QualCode
METHANE	1.1		

nsample	AIC-MW-03-0702
samp_date	7/24/2002
lab_id	0207645-02A
qc_type	NM
units	UG/ML
Pct_Solids	0
DUP_OF:	

Parameter	Result	ValQual	QualCode
METHANE	1.1		

nsample	AIC-MW-04-0702
samp_date	7/24/2002
lab_id	0207645-03A
qc_type	NM
units	UG/ML
Pct_Solids	0
DUP_OF:	

Parameter	Result	ValQual	QualCode
METHANE	0.23		

PROJ_NO: 4260

SDG: 254-2 MEDIA: WATER DATA FRACTION: PAH

nsample	AIC-DUP-02-0702
samp_date	7/24/2002
lab_id	WS1689-3
qc_type	NM
units	UG/L
Pct_Solids	0
DUP_OF:	AIC-MW-02-0702

Parameter	Result	Val Qual	Qual Code
1-METHYLNAPHTHALENE	3	J	C
2-METHYLNAPHTHALENE	3		
ACENAPHTHENE	2	J	G
ACENAPHTHYLENE	0.4		
ANTHRACENE	0.2	U	
BENZO(A)ANTHRACENE	0.2	U	
BENZO(A)PYRENE	0.2	U	
BENZO(B)FLUORANTHENE	0.2	U	
BENZO(G,H,I)PERYLENE	0.2	U	
BENZO(K)FLUORANTHENE	0.2	U	
CHRYSENE	0.2	U	
DIBENZO(A,H)ANTHRACENE	0.2	U	
FLUORANTHENE	0.1	J	P
FLUORENE	2	J	G
INDENO(1,2,3-CD)PYRENE	0.2	U	
NAPHTHALENE	1		
PHENANTHRENE	1		
PYRENE	0.1	J	P

nsample	AIC-MW-01-0702
samp_date	7/25/2002
lab_id	WS1696-1
qc_type	NM
units	UG/L
Pct_Solids	0
DUP_OF:	

Parameter	Result	Val Qual	Qual Code
1-METHYLNAPHTHALENE	0.2	U	
2-METHYLNAPHTHALENE	0.2	U	
ACENAPHTHENE	0.2	J	P
ACENAPHTHYLENE	0.2	U	
ANTHRACENE	0.2	U	
BENZO(A)ANTHRACENE	0.2	U	
BENZO(A)PYRENE	0.2	U	
BENZO(B)FLUORANTHENE	0.2	U	
BENZO(G,H,I)PERYLENE	0.2	U	
BENZO(K)FLUORANTHENE	0.2	U	
CHRYSENE	0.2	U	
DIBENZO(A,H)ANTHRACENE	0.2	U	
FLUORANTHENE	0.1	J	P
FLUORENE	0.05	J	P
INDENO(1,2,3-CD)PYRENE	0.2	U	
NAPHTHALENE	0.2	U	
PHENANTHRENE	0.2	U	
PYRENE	0.1	J	P

nsample	AIC-MW-02-0702
samp_date	7/24/2002
lab_id	WS1689-1
qc_type	NM
units	UG/L
Pct_Solids	0
DUP_OF:	

Parameter	Result	Val Qual	Qual Code
1-METHYLNAPHTHALENE	2	J	C
2-METHYLNAPHTHALENE	2		
ACENAPHTHENE	1	J	G
ACENAPHTHYLENE	0.3		
ANTHRACENE	0.2	U	
BENZO(A)ANTHRACENE	0.2	U	
BENZO(A)PYRENE	0.2	U	
BENZO(B)FLUORANTHENE	0.2	U	
BENZO(G,H,I)PERYLENE	0.2	U	
BENZO(K)FLUORANTHENE	0.2	U	
CHRYSENE	0.2	U	
DIBENZO(A,H)ANTHRACENE	0.2	U	
FLUORANTHENE	0.1	J	P
FLUORENE	1	J	G
INDENO(1,2,3-CD)PYRENE	0.2	U	
NAPHTHALENE	0.7		
PHENANTHRENE	0.8		
PYRENE	0.1	J	P

PROJ_NO: 4260

SDG: 254-2 MEDIA: WATER DATA FRACTION: PAH

nsample	AIC-MW-03-0702
samp_date	7/25/2002
lab_id	WS1696-2
qc_type	NM
units	UG/L
Pct_Solids	0
DUP_OF:	

Parameter	Result	Val Qual	Qual Code
1-METHYLNAPHTHALENE	2	J	C
2-METHYLNAPHTHALENE	2		
ACENAPHTHENE	1		
ACENAPHTHYLENE	0.4		
ANTHRACENE	0.2	U	
BENZO(A)ANTHRACENE	0.2	U	
BENZO(A)PYRENE	0.2	U	
BENZO(B)FLUORANTHENE	0.2	U	
BENZO(G,H,I)PERYLENE	0.2	U	
BENZO(K)FLUORANTHENE	0.2	U	
CHRYSENE	0.2	U	
DIBENZO(A,H)ANTHRACENE	0.2	U	
FLUORANTHENE	0.2	U	
FLUORENE	1		
INDENO(1,2,3-CD)PYRENE	0.2	U	
NAPHTHALENE	1		
PHENANTHRENE	1		
PYRENE	0.1	J	P

nsample	AIC-MW-04-0702
samp_date	7/25/2002
lab_id	WS1696-3
qc_type	NM
units	UG/L
Pct_Solids	0
DUP_OF:	

Parameter	Result	Val Qual	Qual Code
1-METHYLNAPHTHALENE	0.2	U	
2-METHYLNAPHTHALENE	0.2	U	
ACENAPHTHENE	0.2	U	
ACENAPHTHYLENE	0.2	U	
ANTHRACENE	0.2	U	
BENZO(A)ANTHRACENE	0.2	U	
BENZO(A)PYRENE	0.2	U	
BENZO(B)FLUORANTHENE	0.2	U	
BENZO(G,H,I)PERYLENE	0.2	U	
BENZO(K)FLUORANTHENE	0.2	U	
CHRYSENE	0.2	U	
DIBENZO(A,H)ANTHRACENE	0.2	U	
FLUORANTHENE	0.2	U	
FLUORENE	0.2	U	
INDENO(1,2,3-CD)PYRENE	0.2	U	
NAPHTHALENE	0.2	U	
PHENANTHRENE	0.2	U	
PYRENE	0.2	U	

nsample	AIC-MW-05D-0702
samp_date	7/24/2002
lab_id	WS1689-2
qc_type	NM
units	UG/L
Pct_Solids	0
DUP_OF:	

Parameter	Result	Val Qual	Qual Code
1-METHYLNAPHTHALENE	1		
2-METHYLNAPHTHALENE	1		
ACENAPHTHENE	0.3		
ACENAPHTHYLENE	0.2	J	P
ANTHRACENE	0.2	U	
BENZO(A)ANTHRACENE	0.2	U	
BENZO(A)PYRENE	0.2	U	
BENZO(B)FLUORANTHENE	0.2	U	
BENZO(G,H,I)PERYLENE	0.2	U	
BENZO(K)FLUORANTHENE	0.2	U	
CHRYSENE	0.2	U	
DIBENZO(A,H)ANTHRACENE	0.2	U	
FLUORANTHENE	0.2	U	
FLUORENE	0.4		
INDENO(1,2,3-CD)PYRENE	0.2	U	
NAPHTHALENE	0.2	J	P
PHENANTHRENE	0.5		
PYRENE	0.2	U	

PROJ_NO: 4260

SDG: 254-2 MEDIA: WATER DATA FRACTION: PET

nsample	AIC-DUP-02-0702
samp_date	7/24/2002
lab_id	WS1689-3
qc_type	NM
units	UG/L
Pct_Solids	0
DUP_OF:	AIC-MW-02-0702

Parameter	Result	Val Qual	Qual Code
TOTAL PETROLEUM HYDROCARBONS	1400	J	G

nsample	AIC-MW-01-0702
samp_date	7/25/2002
lab_id	WS1696-1
qc_type	NM
units	UG/L
Pct_Solids	0
DUP_OF:	

Parameter	Result	Val Qual	Qual Code
TOTAL PETROLEUM HYDROCARBONS	730		

nsample	AIC-MW-02-0702
samp_date	7/24/2002
lab_id	WS1689-1
qc_type	NM
units	UG/L
Pct_Solids	0
DUP_OF:	

Parameter	Result	Val Qual	Qual Code
TOTAL PETROLEUM HYDROCARBONS	1500		

PROJ_NO: 4260

SDG: 254-2 MEDIA: WATER DATA FRACTION: PET

nsample	AIC-MW-03-0702
samp_date	7/25/2002
lab_id	WS1696-2
qc_type	NM
units	UG/L
Pct_Solids	0
DUP_OF:	

Parameter	Result	Val Qual	Qual Code
TOTAL PETROLEUM HYDROCARBONS	2000		

nsample	AIC-MW-04-0702
samp_date	7/25/2002
lab_id	WS1696-3
qc_type	NM
units	UG/L
Pct_Solids	0
DUP_OF:	

Parameter	Result	Val Qual	Qual Code
TOTAL PETROLEUM HYDROCARBONS	250	J	P

nsample	AIC-MW-05D-0702
samp_date	7/24/2002
lab_id	WS1689-2
qc_type	NM
units	UG/L
Pct_Solids	0
DUP_OF:	

Parameter	Result	Val Qual	Qual Code
TOTAL PETROLEUM HYDROCARBONS	250	J	GP

Tetra Tech NUS **INTERNAL CORRESPONDENCE**

TO: C. BRYAN **DATE:** NOVEMBER 21, 2002

FROM: SETH C. STAFFEN **COPIES:** DV FILE

SUBJECT: ORGANIC DATA VALIDATION – VOA/EDB/PAH/TPH/OVG
CTO-254, NAS KEY WEST
SDG: 254-7

SAMPLES: 11/Aqueous/VOA/EDB/PAH/TPH/OVG

AIC-MW-01-0902	AIC-MW-02-0902	AIC-MW-03-0902
AIC-MW-04-0902	AIC-MW-05D-0902	DUP-01-0902
FC-MW-05-0902	FC-MW-06-0902	FC-MW-20-0902
TB-091702	TB-091802	

OVERVIEW

The sample set for CTO 254, NAS Key West; SDG 254-7 consists of nine (9) aqueous environmental samples and two (2) trip blanks. The environmental samples were analyzed for volatile organic compounds (VOCs), EDB, and polynuclear aromatic hydrocarbons (PAH), and total petroleum hydrocarbons (TPH). In addition, samples AIC-MW-03-0902 and AIC-MW-05D-0902 were analyzed for methane. Samples TB-091702 and TB-091802 were analyzed for VOCs only. One field duplicate sample pair was included in this SDG: AIC-MW-02-0902 / DUP-01-0902.

The samples were collected by TetraTech NUS on September 17-18, 2002 and analyzed by Katahdin Analytical Services. All analyses were conducted in accordance with Naval Facilities Engineering Service Center (NFESC) Quality Assurance/Quality Control (QA/QC) criteria using analytical methods SW-846 Methods 8260B, 8270-SIM, Florida-PRO, RSK-175, and EPA Method 504.1 analytical and reporting protocols.

The data contained in this SDG were validated with regard to the following parameters:

- * Data Completeness
- * Holding Times/Preservation/Collection
- Initial and Continuing Calibration
- Blank Results
- * Field Duplicate Precision
- 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.

VOLATILE

Continuing calibration percent differences (%Ds) on 09/21/02 at 0844 on instrument GCMS-S exceeded the 25% quality control limit for 2-chloroethylvinyl ether (>50%), chloromethane (<50%), and carbon tetrachloride(>50%). Since only nondetected results were reported, 2-chloroethylvinyl ether and carbon tetrachloride were qualified as estimated, UJ, in the associated samples. No qualification action was taken on chloromethane in the associated samples since the exceedance was less than 50%.

Continuing calibration %D on 09/21/02 at 0803 on instrument GCMS-M exceeded the 25% quality control limit for 2-chloroethylvinyl ether. No qualification action was taken on the aforementioned compound in the associated sample since the exceedance was less than 50%.

Continuing calibration %D on 09/24/02 at 0957 on instrument GCMS-F exceeded the 25% quality control limit for chloroethane. No qualification action was taken on the aforementioned compound in the associated sample, since the exceedance was less than 50%.

The following compounds were detected in the laboratory method blank at the maximum concentration indicated below:

Compound	Maximum Concentration	Action Level
Chloroform	0.4 ug/L	2.0 ug/L
Toluene	0.4 ug/L	2.0 ug/L
Ethylbenzene	0.2 ug/L	1.0 ug/L
m+p xylenes	0.3 ug/L	1.5 ug/L
Xylenes (total)	0.3 ug/L	1.5 ug/L
Methylene chloride	0.4 ug/L	4.0 ug/L

Blank Actions

- Value < Reporting limit (RL); report RL followed by a U.
- Value > RL and < Action level; report value followed by a U.
- Value > RL and > Action level; report value unqualified.

Action levels of 5X and 10X the maximum contaminant concentrations were established to evaluate laboratory blank contamination. Dilution factors and sample aliquots were taken into consideration during the application of all action levels. Positive results less than the action levels were qualified as nondetected, U, as a result of method blank contamination. Quality control samples were not qualified due to blank contamination.

The laboratory control sample (LCS) percent recovery (%R) for carbon tetrachloride (302%) exceeded the upper quality control limit (137%) on 09/21/02. No qualification action was taken.

The LCS %R for 2-chloroethylvinyl ether (14%) fell below the lower quality control limit (50%) but was greater than 10% on 09/23/02. No qualification action was taken.

The LCS %R for chloroethane (156%) exceeded the upper quality control limit (134%) on 09/24/02. No qualification action was taken.

Several samples in the EDB analysis contained surrogate %Rs of tetrachloro-M-xylene that fell outside of the quality control range. No qualification action was taken.

PAH

Continuing calibration %Ds on 09/25/02 at 1129 on instrument GCMS-X exceeded the 25% quality control limit for naphthalene, 1-methylnaphthalene, 2-methylnaphthalene, fluorene, benzo(a)anthracene, and chrysene. No qualification action was taken on the aforementioned compounds in the associated samples, since the exceedances were less than 50%.

Continuing calibration %D on 10/03/02 at 1532 on instrument GCMS-X exceeded the 25% quality control limit for phenanthrene. No qualification action was taken on the aforementioned compound in the associated sample, since the exceedance was less than 50%.

The surrogate recovery of nitrobenzene-d5 was zero percent for sample FC-MW-20-0902. The zero percent recovery was attributed to a matrix interference by the laboratory. No qualification action was taken on the basis of the low surrogate recovery.

The surrogate recovery of nitrobenzene-d5 exceeded the upper quality control limit in sample AIC-MC-03-0902. No qualification action was taken.

The LCS and LCSD %Rs exceeded the upper quality control limit for phenanthrene on 09/25/02. No qualification action was taken.

Naphthalene, 1-methylnaphthalene, and 2-methynaphthalene exceeded the linear calibration range of the instrument in sample FC-MW-20-0902. The results for the aforementioned compounds were transposed over from the 200X dilution analysis and used for data validation purposes.

Two-one liter amber bottles were broken for sample AIC-MW-02-0902 and one bottle was broken for FC-MW-05-0902. No qualification action was taken.

TPH

All quality control parameters were met for this fraction.

METHANE

The initial calibration contained a percent relative standard deviation (%RSD) that exceeded the 20% quality control limit for methane. No qualification action was taken, since the exceedance was less than 50%.

The continuing calibration on 09/23/02 contained a %D that exceeded the 15% quality control limit for methane. No qualification action was taken, since the exceedance was less than 50%.

The temperature was greater than 4°C when the samples were received at the laboratory. In addition, the headspace was greater than 5mm. No qualification action was taken because the volatile analysis was completed within the seven days of sample collection.

EXECUTIVE SUMMARY

Laboratory Performance Issues: Several compounds were detected in the laboratory method blank in the volatile fraction. Several compounds did not meet initial and/or continuing calibration criteria.

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 NFESC guidelines IRCDQM (September, 1999). 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 NFESC guidelines and the Quality Assurance Project Plan (QAPP)."

Tetra Tech NUS

Seth C. Staffen
Environmental Scientist/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

Qualifier Codes:

A = Lab Blank Contamination
B = Field Blank Contamination
C = Calibration (i.e., % RSDs, %Ds, ICVs, CCVs, RPDs, RRFs, etc.) Noncompliance
D = MS/MSD Noncompliance
E = LCS/LCSD 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 - include ICSAB % R's
L = Instrument Calibration Range Exceedance
M = Sample Preservation
N = Internal Standard Noncompliance
N01 = Internal Standard Noncompliance Dioxins
N02 = Recovery Standard Noncompliance Dioxins
N03 = Clean-up Standard Noncompliance Dioxins
O = Poor Instrument Performance (i.e., base-time drifting)
P = Uncertainty near detection limit (< 2 x IDL for inorganics and <CRQL for organics)
Q = Other problems (can encompass a number of issues)
R = Surrogates Recovery Noncompliance
S = Pesticide/PCB Resolution
T = % Breakdown Noncompliance for DDT and Endrin
U = Pest/PCD% between columns for positive results
V = Non-linear calibrations, tuning $r < 0.995$ (correlation coefficient)
W = EMPC result
X = Signal to noise response drop
Y = Percent solids <30%
Z = Uncertainty at 2 sigma deviation is less than sample activity

PROJ_NO: 4260

SDG: 254-7 MEDIA: WATER DATA FRACTION: OV

nsample	AIC-MW-01-0902
samp_date	9/18/2002
lab_id	WS3715-2
qc_type	NM
units	UG/L
Pct_Solids	0
DUP_OF:	

Parameter	Result	Val Qual	Qual Code
1,1,1-TRICHLOROETHANE	1	U	
1,1,2,2-TETRACHLOROETHANE	1	U	
1,1,2-TRICHLOROETHANE	1	U	
1,1-DICHLOROETHANE	1	U	
1,1-DICHLOROETHENE	1	U	
1,2-DIBROMOETHANE	0.02	U	
1,2-DICHLOROETHANE	1	U	
1,2-DICHLOROPROPANE	1	U	
2-CHLOROETHYL VINYL ETHER	1	UJ	C
BENZENE	1	U	
BROMODICHLOROMETHANE	1	U	
BROMOFORM	1	U	
BROMOMETHANE	2	U	
CARBON TETRACHLORIDE	1	UJ	C
CHLOROBENZENE	1	U	
CHLORODIBROMOMETHANE	1	U	
CHLOROETHANE	2	U	
CHLOROFORM	1	U	
CHLOROMETHANE	2	U	
CIS-1,2-DICHLOROETHENE	1	U	
CIS-1,3-DICHLOROPROPENE	1	U	
ETHYLBENZENE	1	U	
M+P-XYLENES	2	U	
METHYL TERT-BUTYL ETHER	2	U	
METHYLENE CHLORIDE	1	U	
O-XYLENE	1	U	
TETRACHLOROETHENE	1	U	
TOLUENE	1	U	
TOTAL XYLENES	3	U	
TRANS-1,2-DICHLOROETHENE	1	U	

nsample	AIC-MW-01-0902
samp_date	9/18/2002
lab_id	WS3715-2
qc_type	NM
units	UG/L
Pct_Solids	0
DUP_OF:	

Parameter	Result	Val Qual	Qual Code
TRANS-1,3-DICHLOROPROPENE	1	U	
TRICHLOROETHENE	1	U	
VINYL CHLORIDE	2	U	

nsample	AIC-MW-02-0902
samp_date	9/17/2002
lab_id	WS3701-6
qc_type	NM
units	UG/L
Pct_Solids	0
DUP_OF:	

Parameter	Result	Val Qual	Qual Code
1,1,1-TRICHLOROETHANE	1	U	
1,1,2,2-TETRACHLOROETHANE	1	U	
1,1,2-TRICHLOROETHANE	1	U	
1,1-DICHLOROETHANE	1	U	
1,1-DICHLOROETHENE	1	U	
1,2-DIBROMOETHANE	0.02	U	
1,2-DICHLOROETHANE	1	U	
1,2-DICHLOROPROPANE	1	U	
2-CHLOROETHYL VINYL ETHER	1	U	
BENZENE	1	U	
BROMODICHLOROMETHANE	1	U	
BROMOFORM	1	U	
BROMOMETHANE	2	U	
CARBON TETRACHLORIDE	1	U	
CHLOROBENZENE	1	U	
CHLORODIBROMOMETHANE	1	U	
CHLOROETHANE	2	U	
CHLOROFORM	1	U	
CHLOROMETHANE	2	U	
CIS-1,2-DICHLOROETHENE	1	U	
CIS-1,3-DICHLOROPROPENE	1	U	
ETHYLBENZENE	1	U	A
M+P-XYLENES	2	U	
METHYL TERT-BUTYL ETHER	2	U	
METHYLENE CHLORIDE	1	U	
O-XYLENE	1	U	
TETRACHLOROETHENE	1	U	
TOLUENE	1	U	
TOTAL XYLENES	3	U	
TRANS-1,2-DICHLOROETHENE	1	U	

PROJ_NO: 4260

SDG: 254-7 MEDIA: WATER DATA FRACTION: OV

nsample	AIC-MW-02-0902
samp_date	9/17/2002
lab_id	WS3701-6
qc_type	NM
units	UG/L
Pct_Solids	0
DUP_OF:	

Parameter	Result	Val Qual	Qual Code
TRANS-1,3-DICHLOROPROPENE	1	U	
TRICHLOROETHENE	1	U	
VINYL CHLORIDE	2	U	

nsample	AIC-MW-03-0902
samp_date	9/17/2002
lab_id	WS3701-5
qc_type	NM
units	UG/L
Pct_Solids	0
DUP_OF:	

Parameter	Result	Val Qual	Qual Code
1,1,1-TRICHLOROETHANE	1	U	
1,1,2,2-TETRACHLOROETHANE	1	U	
1,1,2-TRICHLOROETHANE	1	U	
1,1-DICHLOROETHANE	1	U	
1,1-DICHLOROETHENE	1	U	
1,2-DIBROMOETHANE	0.02	U	
1,2-DICHLOROETHANE	1	U	
1,2-DICHLOROPROPANE	1	U	
2-CHLOROETHYL VINYL ETHER	1	U	
BENZENE	1	U	
BROMODICHLOROMETHANE	1	U	
BROMOFORM	1	U	
BROMOMETHANE	2	U	
CARBON TETRACHLORIDE	1	U	
CHLOROBENZENE	1	U	
CHLORODIBROMOMETHANE	1	U	
CHLOROETHANE	2	U	
CHLOROFORM	1	U	
CHLOROMETHANE	2	U	
CIS-1,2-DICHLOROETHENE	1	U	
CIS-1,3-DICHLOROPROPENE	1	U	
ETHYLBENZENE	1	U	A
M+P-XYLENES	2	U	
METHYL TERT-BUTYL ETHER	0.9	J	P
METHYLENE CHLORIDE	1	U	
O-XYLENE	1	U	
TETRACHLOROETHENE	1	U	
TOLUENE	1	U	
TOTAL XYLENES	3	U	
TRANS-1,2-DICHLOROETHENE	1	U	

nsample	AIC-MW-03-0902
samp_date	9/17/2002
lab_id	WS3701-5
qc_type	NM
units	UG/L
Pct_Solids	0
DUP_OF:	

Parameter	Result	Val Qual	Qual Code
TRANS-1,3-DICHLOROPROPENE	1	U	
TRICHLOROETHENE	1	U	
VINYL CHLORIDE	2	U	

PROJ_NO: 4260

SDG: 254-7 MEDIA: WATER DATA FRACTION: OV

nsample	AIC-MW-04-0902
samp_date	9/17/2002
lab_id	WS3701-4
qc_type	NM
units	UG/L
Pct_Solids	0
DUP_OF:	

Parameter	Result	Val Qual	Qual Code
1,1,1-TRICHLOROETHANE	1	U	
1,1,2,2-TETRACHLOROETHANE	1	U	
1,1,2-TRICHLOROETHANE	1	U	
1,1-DICHLOROETHANE	1	U	
1,1-DICHLOROETHENE	1	U	
1,2-DIBROMOETHANE	0.02	U	
1,2-DICHLOROETHANE	1	U	
1,2-DICHLOROPROPANE	1	U	
2-CHLOROETHYL VINYL ETHER	1	U	
BENZENE	1	U	
BROMODICHLOROMETHANE	1	U	
BROMOFORM	1	U	
BROMOMETHANE	2	U	
CARBON TETRACHLORIDE	1	U	
CHLOROBENZENE	1	U	
CHLORODIBROMOMETHANE	1	U	
CHLOROETHANE	2	U	
CHLOROFORM	1	U	
CHLOROMETHANE	2	U	
CIS-1,2-DICHLOROETHENE	1	U	
CIS-1,3-DICHLOROPROPENE	1	U	
ETHYLBENZENE	1	U	
M+P-XYLENES	2	U	
METHYL TERT-BUTYL ETHER	2	U	
METHYLENE CHLORIDE	1	U	
O-XYLENE	1	U	
TETRACHLOROETHENE	1	U	
TOLUENE	1	U	
TOTAL XYLENES	3	U	
TRANS-1,2-DICHLOROETHENE	1	U	

nsample	AIC-MW-04-0902
samp_date	9/17/2002
lab_id	WS3701-4
qc_type	NM
units	UG/L
Pct_Solids	0
DUP_OF:	

Parameter	Result	Val Qual	Qual Code
TRANS-1,3-DICHLOROPROPENE	1	U	
TRICHLOROETHENE	1	U	
VINYL CHLORIDE	2	U	

nsample	AIC-MW-05D-0902
samp_date	9/18/2002
lab_id	WS3715-1
qc_type	NM
units	UG/L
Pct_Solids	0
DUP_OF:	

Parameter	Result	Val Qual	Qual Code
1,1,1-TRICHLOROETHANE	1	U	
1,1,2,2-TETRACHLOROETHANE	1	U	
1,1,2-TRICHLOROETHANE	1	U	
1,1-DICHLOROETHANE	1	U	
1,1-DICHLOROETHENE	1	U	
1,2-DIBROMOETHANE	0.02	U	
1,2-DICHLOROETHANE	1	U	
1,2-DICHLOROPROPANE	1	U	
2-CHLOROETHYL VINYL ETHER	1	UJ	C
BENZENE	1	U	
BROMODICHLOROMETHANE	1	U	
BROMOFORM	1	U	
BROMOMETHANE	2	U	
CARBON TETRACHLORIDE	1	UJ	C
CHLOROBENZENE	1	U	
CHLORODIBROMOMETHANE	1	U	
CHLOROETHANE	2	U	
CHLOROFORM	1	U	
CHLOROMETHANE	2	U	
CIS-1,2-DICHLOROETHENE	1	U	
CIS-1,3-DICHLOROPROPENE	1	U	
ETHYLBENZENE	1	U	A
M+P-XYLENES	2	U	
METHYL TERT-BUTYL ETHER	2	U	
METHYLENE CHLORIDE	1	U	
O-XYLENE	1	U	
TETRACHLOROETHENE	1	U	
TOLUENE	1	U	
TOTAL XYLENES	3	U	
TRANS-1,2-DICHLOROETHENE	1	U	

PROJ_NO: 4260

SDG: 254-7 MEDIA: WATER DATA FRACTION: OV

nsample	AIC-MW-05D-0902
samp_date	9/18/2002
lab_id	WS3715-1
qc_type	NM
units	UG/L
Pct_Solids	0
DUP_OF:	

Parameter	Result	Val Qual	Qual Code
TRANS-1,3-DICHLOROPROPENE	1	U	
TRICHLOROETHENE	1	U	
VINYL CHLORIDE	2	U	

nsample	DUP-01-0902
samp_date	9/17/2002
lab_id	WS3701-7
qc_type	NM
units	UG/L
Pct_Solids	0
DUP_OF:	AIC-MW-02-0902

Parameter	Result	Val Qual	Qual Code
1,1,1-TRICHLOROETHANE	1	U	
1,1,2,2-TETRACHLOROETHANE	1	U	
1,1,2-TRICHLOROETHANE	1	U	
1,1-DICHLOROETHANE	1	U	
1,1-DICHLOROETHENE	1	U	
1,2-DIBROMOETHANE	0.02	U	
1,2-DICHLOROETHANE	1	U	
1,2-DICHLOROPROPANE	1	U	
2-CHLOROETHYL VINYL ETHER	1	U	
BENZENE	1	U	
BROMODICHLOROMETHANE	1	U	
BROMOFORM	1	U	
BROMOMETHANE	2	U	
CARBON TETRACHLORIDE	1	U	
CHLOROBENZENE	1	U	
CHLORODIBROMOMETHANE	1	U	
CHLOROETHANE	2	U	
CHLOROFORM	1	U	
CHLOROMETHANE	2	U	
CIS-1,2-DICHLOROETHENE	1	U	
CIS-1,3-DICHLOROPROPENE	1	U	
ETHYLBENZENE	1	U	A
M+P-XYLENES	2	U	
METHYL TERT-BUTYL ETHER	2	U	
METHYLENE CHLORIDE	1	U	
O-XYLENE	1	U	
TETRACHLOROETHENE	1	U	
TOLUENE	1	U	
TOTAL XYLENES	3	U	
TRANS-1,2-DICHLOROETHENE	1	U	

nsample	DUP-01-0902
samp_date	9/17/2002
lab_id	WS3701-7
qc_type	NM
units	UG/L
Pct_Solids	0
DUP_OF:	AIC-MW-02-0902

Parameter	Result	Val Qual	Qual Code
TRANS-1,3-DICHLOROPROPENE	1	U	
TRICHLOROETHENE	1	U	
VINYL CHLORIDE	2	U	

PROJ_NO: 4260

SDG: 254-7 MEDIA: WATER DATA FRACTION: OV

nsample	FC-MW-05-0902
samp_date	9/17/2002
lab_id	WS3701-2
qc_type	NM
units	UG/L
Pct_Solids	0
DUP_OF:	

Parameter	Result	Val Qual	Qual Code
1,1,1-TRICHLOROETHANE	1	U	
1,1,2,2-TETRACHLOROETHANE	1	U	
1,1,2-TRICHLOROETHANE	1	U	
1,1-DICHLOROETHANE	1	U	
1,1-DICHLOROETHENE	1	U	
1,2-DIBROMOETHANE	0.02	U	
1,2-DICHLOROETHANE	1	U	
1,2-DICHLOROPROPANE	1	U	
2-CHLOROETHYL VINYL ETHER	1	U	
BENZENE	1	U	
BROMODICHLOROMETHANE	1	U	
BROMOFORM	1	U	
BROMOMETHANE	2	U	
CARBON TETRACHLORIDE	1	U	
CHLOROBENZENE	1	U	
CHLORODIBROMOMETHANE	1	U	
CHLOROETHANE	2	U	
CHLOROFORM	1	U	
CHLOROMETHANE	2	U	
CIS-1,2-DICHLOROETHENE	1	U	
CIS-1,3-DICHLOROPROPENE	1	U	
ETHYLBENZENE	1	U	
M+P-XYLENES	2	U	
METHYL TERT-BUTYL ETHER	2	U	
METHYLENE CHLORIDE	1	U	
O-XYLENE	1	U	
TETRACHLOROETHENE	1	U	
TOLUENE	1	U	
TOTAL XYLENES	3	U	
TRANS-1,2-DICHLOROETHENE	1	U	

nsample	FC-MW-05-0902
samp_date	9/17/2002
lab_id	WS3701-2
qc_type	NM
units	UG/L
Pct_Solids	0
DUP_OF:	

Parameter	Result	Val Qual	Qual Code
TRANS-1,3-DICHLOROPROPENE	1	U	
TRICHLOROETHENE	1	U	
VINYL CHLORIDE	2	U	

nsample	FC-MW-06-0902
samp_date	9/17/2002
lab_id	WS3701-3
qc_type	NM
units	UG/L
Pct_Solids	0
DUP_OF:	

Parameter	Result	Val Qual	Qual Code
1,1,1-TRICHLOROETHANE	1	U	
1,1,2,2-TETRACHLOROETHANE	1	U	
1,1,2-TRICHLOROETHANE	1	U	
1,1-DICHLOROETHANE	1	U	
1,1-DICHLOROETHENE	1	U	
1,2-DIBROMOETHANE	0.02	U	
1,2-DICHLOROETHANE	1	U	
1,2-DICHLOROPROPANE	1	U	
2-CHLOROETHYL VINYL ETHER	1	U	
BENZENE	0.4	J	P
BROMODICHLOROMETHANE	1	U	
BROMOFORM	1	U	
BROMOMETHANE	2	U	
CARBON TETRACHLORIDE	1	U	
CHLOROBENZENE	1	U	
CHLORODIBROMOMETHANE	1	U	
CHLOROETHANE	2	U	
CHLOROFORM	1	U	
CHLOROMETHANE	2	U	
CIS-1,2-DICHLOROETHENE	1	U	
CIS-1,3-DICHLOROPROPENE	1	U	
ETHYLBENZENE	1	U	A
M+P-XYLENES	2	U	A
METHYL TERT-BUTYL ETHER	2	U	
METHYLENE CHLORIDE	1	U	
O-XYLENE	1	U	
TETRACHLOROETHENE	1	U	
TOLUENE	1	U	
TOTAL XYLENES	3	U	A
TRANS-1,2-DICHLOROETHENE	1	U	

PROJ_NO: 4260

SDG: 254-7 MEDIA: WATER DATA FRACTION: OV

nsample	FC-MW-06-0902
samp_date	9/17/2002
lab_id	WS3701-3
qc_type	NM
units	UG/L
Pct_Solids	0
DUP_OF:	

Parameter	Result	Val Qual	Qual Code
TRANS-1,3-DICHLOROPROPENE	1	U	
TRICHLOROETHENE	1	U	
VINYL CHLORIDE	2	U	

nsample	FC-MW-20-0902
samp_date	9/17/2002
lab_id	WS3701-1
qc_type	NM
units	UG/L
Pct_Solids	0
DUP_OF:	

Parameter	Result	Val Qual	Qual Code
1,1,1-TRICHLOROETHANE	1	U	
1,1,2,2-TETRACHLOROETHANE	1	U	
1,1,2-TRICHLOROETHANE	1	U	
1,1-DICHLOROETHANE	1	U	
1,1-DICHLOROETHENE	1	U	
1,2-DIBROMOETHANE	0.02	U	
1,2-DICHLOROETHANE	1	U	
1,2-DICHLOROPROPANE	1	U	
2-CHLOROETHYL VINYL ETHER	1	U	
BENZENE	1	U	
BROMODICHLOROMETHANE	1	U	
BROMOFORM	1	U	
BROMOMETHANE	2	U	
CARBON TETRACHLORIDE	1	U	
CHLOROBENZENE	1	U	
CHLORODIBROMOMETHANE	1	U	
CHLOROETHANE	2	U	
CHLOROFORM	1	U	
CHLOROMETHANE	2	U	
CIS-1,2-DICHLOROETHENE	1	U	
CIS-1,3-DICHLOROPROPENE	1	U	
ETHYLBENZENE	95		
M+P-XYLENES	11		
METHYL TERT-BUTYL ETHER	2	U	
METHYLENE CHLORIDE	2	U	A
O-XYLENE	1		
TETRACHLOROETHENE	1	U	
TOLUENE	1	U	A
TOTAL XYLENES	12		
TRANS-1,2-DICHLOROETHENE	1	U	

nsample	FC-MW-20-0902
samp_date	9/17/2002
lab_id	WS3701-1
qc_type	NM
units	UG/L
Pct_Solids	0
DUP_OF:	

Parameter	Result	Val Qual	Qual Code
TRANS-1,3-DICHLOROPROPENE	1	U	
TRICHLOROETHENE	1	U	
VINYL CHLORIDE	2	U	

PROJ_NO: 4260

SDG: 254-7 MEDIA: WATER DATA FRACTION: OV

nsample	TB-091702
samp_date	9/11/2002
lab_id	WS3701-8
qc_type	NM
units	UG/L
Pct_Solids	0
DUP_OF:	

Parameter	Result	Val Qual	Qual Code
1,1,1-TRICHLOROETHANE	1	U	
1,1,2,2-TETRACHLOROETHANE	1	U	
1,1,2-TRICHLOROETHANE	1	U	
1,1-DICHLOROETHANE	1	U	
1,1-DICHLOROETHENE	1	U	
1,2-DICHLOROETHANE	1	U	
1,2-DICHLOROPROPANE	1	U	
2-CHLOROETHYL VINYL ETHER	1	U	
BENZENE	1	U	
BROMODICHLOROMETHANE	1	U	
BROMOFORM	1	U	
BROMOMETHANE	2	U	
CARBON TETRACHLORIDE	1	U	
CHLOROBENZENE	1	U	
CHLORODIBROMOMETHANE	1	U	
CHLOROETHANE	2	U	
CHLOROFORM	1	U	
CHLOROMETHANE	2	U	
CIS-1,2-DICHLOROETHENE	1	U	
CIS-1,3-DICHLOROPROPENE	1	U	
ETHYLBENZENE	1	U	
M+P-XYLENES	2	U	
METHYL TERT-BUTYL ETHER	2	U	
METHYLENE CHLORIDE	1	U	
O-XYLENE	1	U	
TETRACHLOROETHENE	1	U	
TOLUENE	1	U	
TOTAL XYLENES	3	U	
TRANS-1,2-DICHLOROETHENE	1	U	
TRANS-1,3-DICHLOROPROPENE	1	U	

nsample	TB-091702
samp_date	9/11/2002
lab_id	WS3701-8
qc_type	NM
units	UG/L
Pct_Solids	0
DUP_OF:	

Parameter	Result	Val Qual	Qual Code
TRICHLOROETHENE	1	U	
VINYL CHLORIDE	2	U	

nsample	TB-091802
samp_date	9/11/2002
lab_id	WS3715-3
qc_type	NM
units	UG/L
Pct_Solids	0
DUP_OF:	

Parameter	Result	Val Qual	Qual Code
1,1,1-TRICHLOROETHANE	1	U	
1,1,2,2-TETRACHLOROETHANE	1	U	
1,1,2-TRICHLOROETHANE	1	U	
1,1-DICHLOROETHANE	1	U	
1,1-DICHLOROETHENE	1	U	
1,2-DICHLOROETHANE	1	U	
1,2-DICHLOROPROPANE	1	U	
2-CHLOROETHYL VINYL ETHER	1	U	
BENZENE	1	U	
BROMODICHLOROMETHANE	1	U	
BROMOFORM	1	U	
BROMOMETHANE	2	U	
CARBON TETRACHLORIDE	1	U	
CHLOROBENZENE	1	U	
CHLORODIBROMOMETHANE	1	U	
CHLOROETHANE	2	U	
CHLOROFORM	1	U	
CHLOROMETHANE	2	U	
CIS-1,2-DICHLOROETHENE	1	U	
CIS-1,3-DICHLOROPROPENE	1	U	
ETHYLBENZENE	1	U	
M+P-XYLENES	2	U	
METHYL TERT-BUTYL ETHER	2	U	
METHYLENE CHLORIDE	1	U	
O-XYLENE	1	U	
TETRACHLOROETHENE	1	U	
TOLUENE	1	U	
TOTAL XYLENES	3	U	
TRANS-1,2-DICHLOROETHENE	1	U	
TRANS-1,3-DICHLOROPROPENE	1	U	

PROJ_NO: 4260

SDG: 254-7 MEDIA: WATER DATA FRACTION: OV

nsample	TB-091802
samp_date	9/11/2002
lab_id	WS3715-3
qc_type	NM
units	UG/L
Pct_Solids	0
DUP_OF:	

Parameter	Result	Val Qual	Qual Code
TRICHLOROETHENE	1	U	
VINYL CHLORIDE	2	U	

PROJ_NO: 4260

SDG: 254-7 MEDIA: WATER DATA FRACTION: PAH

nsample	AIC-MW-01-0902	nsample	AIC-MW-02-0902	nsample	AIC-MW-03-0902
samp_date	9/18/2002	samp_date	9/17/2002	samp_date	9/17/2002
lab_id	WS3715-2	lab_id	WS3701-6	lab_id	WS3701-5
qc_type	NM	qc_type	NM	qc_type	NM
units	UG/L	units	UG/L	units	UG/L
Pct_Solids	0	Pct_Solids	0	Pct_Solids	0
DUP_OF:		DUP_OF:		DUP_OF:	

Parameter	Result	Val Qual	Qual Code
1-METHYLNAPHTHALENE	0.5		
2-METHYLNAPHTHALENE	0.2	U	
ACENAPHTHENE	0.1	J	P
ACENAPHTHYLENE	0.2	U	
ANTHRACENE	0.2	U	
BENZO(A)ANTHRACENE	0.2	U	
BENZO(A)PYRENE	0.2	U	
BENZO(B)FLUORANTHENE	0.2	U	
BENZO(G,H,I)PERYLENE	0.2	U	
BENZO(K)FLUORANTHENE	0.2	U	
CHRYSENE	0.2	U	
DIBENZO(A,H)ANTHRACENE	0.2	U	
FLUORANTHENE	0.2	U	
FLUORENE	0.2	U	
INDENO(1,2,3-CD)PYRENE	0.2	U	
NAPHTHALENE	0.2	U	
PHENANTHRENE	0.2	U	
PYRENE	0.2	U	

Parameter	Result	Val Qual	Qual Code
1-METHYLNAPHTHALENE	1		
2-METHYLNAPHTHALENE	0.4		
ACENAPHTHENE	0.9		
ACENAPHTHYLENE	0.2	U	
ANTHRACENE	0.2	U	
BENZO(A)ANTHRACENE	0.2	U	
BENZO(A)PYRENE	0.2	U	
BENZO(B)FLUORANTHENE	0.2	U	
BENZO(G,H,I)PERYLENE	0.2	U	
BENZO(K)FLUORANTHENE	0.2	U	
CHRYSENE	0.2	U	
DIBENZO(A,H)ANTHRACENE	0.2	U	
FLUORANTHENE	0.2	U	
FLUORENE	0.7		
INDENO(1,2,3-CD)PYRENE	0.2	U	
NAPHTHALENE	0.2		
PHENANTHRENE	0.4		
PYRENE	0.2	J	P

Parameter	Result	Val Qual	Qual Code
1-METHYLNAPHTHALENE	0.1	J	P
2-METHYLNAPHTHALENE	0.1	J	P
ACENAPHTHENE	0.3		
ACENAPHTHYLENE	0.07	J	P
ANTHRACENE	0.2	U	
BENZO(A)ANTHRACENE	0.2	U	
BENZO(A)PYRENE	0.2	U	
BENZO(B)FLUORANTHENE	0.2	U	
BENZO(G,H,I)PERYLENE	0.2	U	
BENZO(K)FLUORANTHENE	0.2	U	
CHRYSENE	0.2	U	
DIBENZO(A,H)ANTHRACENE	0.2	U	
FLUORANTHENE	0.2	U	
FLUORENE	0.2	U	
INDENO(1,2,3-CD)PYRENE	0.2	U	
NAPHTHALENE	0.3		
PHENANTHRENE	0.2	J	P
PYRENE	0.2	U	

PROJ_NO: 4260

SDG: 254-7 MEDIA: WATER DATA FRACTION: PAH

nsample	AIC-MW-04-0902	nsample	AIC-MW-05D-0902	nsample	DUP-01-0902
samp_date	9/17/2002	samp_date	9/18/2002	samp_date	9/17/2002
lab_id	WS3701-4	lab_id	WS3715-1	lab_id	WS3701-7
qc_type	NM	qc_type	NM	qc_type	NM
units	UG/L	units	UG/L	units	UG/L
Pct_Solids	0	Pct_Solids	0	Pct_Solids	0
DUP_OF:		DUP_OF:		DUP_OF:	AIC-MW-02-0902

Parameter	Result	Val Qual	Qual Code
1-METHYLNAPHTHALENE	0.2	U	
2-METHYLNAPHTHALENE	0.2	U	
ACENAPHTHENE	0.2	U	
ACENAPHTHYLENE	0.2	U	
ANTHRACENE	0.2	U	
BENZO(A)ANTHRACENE	0.2	U	
BENZO(A)PYRENE	0.2	U	
BENZO(B)FLUORANTHENE	0.2	U	
BENZO(G,H,I)PERYLENE	0.2	U	
BENZO(K)FLUORANTHENE	0.2	U	
CHRYSENE	0.2	U	
DIBENZO(A,H)ANTHRACENE	0.2	U	
FLUORANTHENE	0.2	U	
FLUORENE	0.2	U	
INDENO(1,2,3-CD)PYRENE	0.2	U	
NAPHTHALENE	0.2	U	
PHENANTHRENE	0.2	U	
PYRENE	0.2	U	

Parameter	Result	Val Qual	Qual Code
1-METHYLNAPHTHALENE	0.9		
2-METHYLNAPHTHALENE	0.8		
ACENAPHTHENE	0.2	J	P
ACENAPHTHYLENE	0.2	U	
ANTHRACENE	0.2	U	
BENZO(A)ANTHRACENE	0.2	U	
BENZO(A)PYRENE	0.2	U	
BENZO(B)FLUORANTHENE	0.2	U	
BENZO(G,H,I)PERYLENE	0.2	U	
BENZO(K)FLUORANTHENE	0.2	U	
CHRYSENE	0.2	U	
DIBENZO(A,H)ANTHRACENE	0.2	U	
FLUORANTHENE	0.2	U	
FLUORENE	0.2	J	P
INDENO(1,2,3-CD)PYRENE	0.2	U	
NAPHTHALENE	0.1	J	P
PHENANTHRENE	0.1	J	P
PYRENE	0.2	U	

Parameter	Result	Val Qual	Qual Code
1-METHYLNAPHTHALENE	2		
2-METHYLNAPHTHALENE	0.8		
ACENAPHTHENE	0.9		
ACENAPHTHYLENE	0.2	U	
ANTHRACENE	0.2	J	P
BENZO(A)ANTHRACENE	0.2	U	
BENZO(A)PYRENE	0.2	U	
BENZO(B)FLUORANTHENE	0.2	U	
BENZO(G,H,I)PERYLENE	0.2	U	
BENZO(K)FLUORANTHENE	0.2	U	
CHRYSENE	0.2	U	
DIBENZO(A,H)ANTHRACENE	0.2	U	
FLUORANTHENE	0.2	U	
FLUORENE	0.7		
INDENO(1,2,3-CD)PYRENE	0.2	U	
NAPHTHALENE	0.4		
PHENANTHRENE	0.2	J	P
PYRENE	0.1	J	P

PROJ_NO: 4260

SDG: 254-7 MEDIA: WATER DATA FRACTION: PAH

nsample	FC-MW-05-0902	nsample	FC-MW-06-0902	nsample	FC-MW-20-0902
samp_date	9/17/2002	samp_date	9/17/2002	samp_date	9/17/2002
lab_id	WS3701-2	lab_id	WS3701-3	lab_id	WS3701-1
qc_type	NM	qc_type	NM	qc_type	NM
units	UG/L	units	UG/L	units	UG/L
Pct_Solids	0	Pct_Solids	0	Pct_Solids	0
DUP_OF:		DUP_OF:		DUP_OF:	

Parameter	Result	Val Qual	Qual Code
1-METHYLNAPHTHALENE	0.2	U	
2-METHYLNAPHTHALENE	0.2	U	
ACENAPHTHENE	0.2	U	
ACENAPHTHYLENE	0.2	U	
ANTHRACENE	0.2	U	
BENZO(A)ANTHRACENE	0.2	U	
BENZO(A)PYRENE	0.2	U	
BENZO(B)FLUORANTHENE	0.2	U	
BENZO(G,H,I)PERYLENE	0.2	U	
BENZO(K)FLUORANTHENE	0.2	U	
CHRYSENE	0.2	U	
DIBENZO(A,H)ANTHRACENE	0.2	U	
FLUORANTHENE	0.2	U	
FLUORENE	0.2	U	
INDENO(1,2,3-CD)PYRENE	0.2	U	
NAPHTHALENE	0.2	U	
PHENANTHRENE	0.2	U	
PYRENE	0.2	U	

Parameter	Result	Val Qual	Qual Code
1-METHYLNAPHTHALENE	0.2	U	
2-METHYLNAPHTHALENE	0.2	U	
ACENAPHTHENE	0.2	U	
ACENAPHTHYLENE	0.2	U	
ANTHRACENE	0.2	U	
BENZO(A)ANTHRACENE	0.2	U	
BENZO(A)PYRENE	0.2	U	
BENZO(B)FLUORANTHENE	0.2	U	
BENZO(G,H,I)PERYLENE	0.2	U	
BENZO(K)FLUORANTHENE	0.2	U	
CHRYSENE	0.2	U	
DIBENZO(A,H)ANTHRACENE	0.2	U	
FLUORANTHENE	0.2	U	
FLUORENE	0.2	U	
INDENO(1,2,3-CD)PYRENE	0.2	U	
NAPHTHALENE	0.1	J	P
PHENANTHRENE	0.2	U	
PYRENE	0.2	U	

Parameter	Result	Val Qual	Qual Code
1-METHYLNAPHTHALENE	47		
2-METHYLNAPHTHALENE	100		
ACENAPHTHENE	0.1	J	P
ACENAPHTHYLENE	0.2	U	
ANTHRACENE	0.2	U	
BENZO(A)ANTHRACENE	0.2	U	
BENZO(A)PYRENE	0.2	U	
BENZO(B)FLUORANTHENE	0.2	U	
BENZO(G,H,I)PERYLENE	0.2	U	
BENZO(K)FLUORANTHENE	0.2	U	
CHRYSENE	0.2	U	
DIBENZO(A,H)ANTHRACENE	0.2	U	
FLUORANTHENE	0.2	U	
FLUORENE	0.2	U	
INDENO(1,2,3-CD)PYRENE	0.2	U	
NAPHTHALENE	360		
PHENANTHRENE	0.08	J	P
PYRENE	0.2	U	

PROJ_NO: 4260

SDG: 254-7 MEDIA: WATER DATA FRACTION: PET

nsample	AIC-MW-01-0902
samp_date	9/18/2002
lab_id	WS3715-2
qc_type	NM
units	UG/L
Pct_Solids	0
DUP_OF:	

Parameter	Result	Val Qual	Qual Code
TOTAL PETROLEUM HYDROCARBONS	240	J	P

nsample	AIC-MW-02-0902
samp_date	9/17/2002
lab_id	WS3701-6
qc_type	NM
units	UG/L
Pct_Solids	0
DUP_OF:	

Parameter	Result	Val Qual	Qual Code
TOTAL PETROLEUM HYDROCARBONS	640		

nsample	AIC-MW-03-0902
samp_date	9/17/2002
lab_id	WS3701-5
qc_type	NM
units	UG/L
Pct_Solids	0
DUP_OF:	

Parameter	Result	Val Qual	Qual Code
TOTAL PETROLEUM HYDROCARBONS	820		

PROJ_NO: 4260

SDG: 254-7 MEDIA: WATER DATA FRACTION: PET

nsample	AIC-MW-04-0902
samp_date	9/17/2002
lab_id	WS3701-4
qc_type	NM
units	UG/L
Pct_Solids	0
DUP_OF:	

Parameter	Result	Val Qual	Qual Code
TOTAL PETROLEUM HYDROCARBONS	200	J	P

nsample	AIC-MW-05D-0902
samp_date	9/18/2002
lab_id	WS3715-1
qc_type	NM
units	UG/L
Pct_Solids	0
DUP_OF:	

Parameter	Result	Val Qual	Qual Code
TOTAL PETROLEUM HYDROCARBONS	240	J	P

nsample	DUP-01-0902
samp_date	9/17/2002
lab_id	WS3701-7
qc_type	NM
units	UG/L
Pct_Solids	0
DUP_OF:	AIC-MW-02-0902

Parameter	Result	Val Qual	Qual Code
TOTAL PETROLEUM HYDROCARBONS	680		

PROJ_NO: 4260

SDG: 254-7 MEDIA: WATER DATA FRACTION: PET

nsample	FC-MW-05-0902
samp_date	9/17/2002
lab_id	WS3701-2
qc_type	NM
units	UG/L
Pct_Solids	0
DUP_OF:	

Parameter	Result	Val Qual	Qual Code
TOTAL PETROLEUM HYDROCARBONS	500	U	

nsample	FC-MW-06-0902
samp_date	9/17/2002
lab_id	WS3701-3
qc_type	NM
units	UG/L
Pct_Solids	0
DUP_OF:	

Parameter	Result	Val Qual	Qual Code
TOTAL PETROLEUM HYDROCARBONS	150	J	P

nsample	FC-MW-20-0902
samp_date	9/17/2002
lab_id	WS3701-1
qc_type	NM
units	UG/L
Pct_Solids	0
DUP_OF:	

Parameter	Result	Val Qual	Qual Code
TOTAL PETROLEUM HYDROCARBONS	4300		

PROJ_NO: 4260

SDG: 254-7 MEDIA: WATER DATA FRACTION: OVG

nsample	AIC-MW-03-0902
samp_date	9/17/2002
lab_id	0209412-01A
qc_type	NM
units	UG/ML
Pct_Solids	0
DUP_OF:	

Parameter	Result	Val Qual	Qual Code
METHANE	3.2		

nsample	AIC-MW-05D-0902
samp_date	9/18/2002
lab_id	0209411-01A
qc_type	NM
units	UG/ML
Pct_Solids	0
DUP_OF:	

Parameter	Result	Val Qual	Qual Code
METHANE	0.37		

Tetra Tech NUS **INTERNAL CORRESPONDENCE**

TO:	**C. BRYAN**	**DATE:**	**JULY 17, 2003**
FROM:	**ETHAN LEE**	**COPIES:**	**DV FILE**

SUBJECT: **ORGANIC DATA VALIDATION- VOA/PAH/TPH/LEAD**
CTO 297, NAS KEY WEST
SAMPLE DELIVERY GROUP (SDG) - 4030

SAMPLES: 5/AQUEOUS

AIC-MW-05D-0503	FC-MW-05-0503	FC-MW-06-0503
FC-MW-22-0503	TB00329/TB00330	

OVERVIEW

The sample set for CTO 297, NAS Key West, SDG 4030 consists of four (4) aqueous environmental samples and one (1) trip blank.

Samples FC-MW-05-0503, FC-MW-06-0503, and FC-MW-22-0503 were analyzed for priority pollutant list (PPL) volatile organic compounds (VOC) plus MTBE, 1,2-dibromoethane (EDB), and total xylene; polynuclear aromatic hydrocarbons (PAHs), total petroleum hydrocarbons (TPH), and lead. The remaining samples were analyzed for bromodichloromethane and chlorodibromomethane only. The samples were collected by TetraTech NUS on May 6, 2003 and analyzed by Accura Analytical Laboratory, Inc. All analyses were conducted in accordance with Naval Facilities Engineering Service Center (NFESC) Quality Assurance/Quality Control (QA/QC) criteria. VOC analyses were conducted using SW846 method 8260B. EDB analyses were conducted using EPA method 504.1. PAH analyses were conducted using SW846 method 8270C. TPH analyses were conducted using the Florida-Pro method. Lead analyses were conducted using SW846 method 6010B.

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 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.

Volatiles

- The initial and continuing calibration RRFs were <0.05 for bromomethane, affecting all samples. Nondetected results reported for bromomethane were qualified as rejected (UR).

- The value for ethylbenzene in sample FC-MW-22-0503 was above the linear range. The ethylbenzene result from a 5X dilution was transposed to this sample and was used for validation.

TPH

- TPH was detected in the method blank:

Compound	Maximum Concentration	Blank Action Level
TPH	1.2 mg/L	6.0 mg/L

An action level of 5X the maximum concentration was used to evaluate the sample data for blank contamination. Sample aliquot and dilution factors, if applicable, were considered when evaluating for blank contamination. Positive results less than the action level for TPH were qualified as nondetected (U) as a result of laboratory blank contamination.

Notes:

The reporting limits reported by the laboratory for bromodichloromethane, chlorodibromomethane, cis-1,3-dichloropropene, trans-1,3-dichloropropene, 1,1,2,2-tetrachloroethane (1.0 ug/L) were above the reporting limits stated in the laboratory specifications (0.6 ug/L, 0.4 ug/L, 0.02 ug/L, 0.2 ug/L, 0.2 ug/L, and 0.2 ug/L, respectively).

The results for VOC sample FC-MW-06-0503 was missing from the original electronic data deliverable (EDD). The laboratory was contacted and John Amritham submitted the missing EDD.

The nondetected results for all parameters were reported in the EDD as a zero (0) value. The data reviewer corrected the results in the database by entering the method detection limit (MDL) for all nondetected values.

The trip blank was analyzed for bromodichloromethane and chlorodibromomethane only. The trip blank should have received analyses for all VOC compounds of interest.

EXECUTIVE SUMMARY

Laboratory Performance Issues: Bromomethane was rejected due to calibration noncompliance. TPH was detected in the method blanks.

Other Factors Affecting Data Quality: None.

The data for these analyses were reviewed with reference to the EPA Functional Guidelines for Organic Data Validation (10/99), and the NFESC guidelines IRCDQM (Sept., 1999). 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 NFESC guidelines and the Quality Assurance Project Plan (QAPP)."

Tetra Tech NUS

Ethan G. Lee
Environmental Scientist

TetraTech NUS

Joseph A. Samchuck
Data Validation Quality Assurance Officer

Attachments:

Appendix A – Qualified Analytical Results
Appendix B – Results as Reported by the Laboratory
Appendix C – Support Documentation

APPENDIX A

QUALIFIED ANALYTICAL RESULTS

Qualifier Codes:

A = Lab Blank Contamination
B = Field Blank Contamination
C = Calibration Noncompliance (i.e., % RSDs, %Ds, ICVs, CCVs, RRFs, etc.)
C01 = GC/MS Tuning Noncompliance
D = MS/MSD Recovery Noncompliance
E = LCS/LCSD Recovery Noncompliance
F = Lab Duplicate Imprecision
G = Field Duplicate Imprecision
H = Holding Time Exceedance
I = ICP Serial Dilution Noncompliance
J = 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 (i.e., base-time drifting)
P = Uncertainty near detection limit (< 2 x IDL for inorganics and <CRQL for organics)
Q = Other problems (can encompass a number of issues; i.e.chromatography,interferences, etc.)
R = Surrogates Recovery Noncompliance
S = Pesticide/PCB Resolution
T = % Breakdown Noncompliance for DDT and Endrin
U = % 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 less than sample activity

PROJ_NO: 5079

SDG: 4030 MEDIA: WATER DATA FRACTION: OV

nsample	AIC-MW-05D-0503
samp_date	5/6/2003
lab_id	4030-001
qc_type	NM
units	UG/L
Pct_Solids	0
DUP_OF:	

Parameter	Result	Val Qual	Qual Code
BROMODICHLOROMETHANE	1.0	U	
CHLORODIBROMOMETHANE	1.0	U	

nsample	FC-MW-05-0503
samp_date	5/6/2003
lab_id	4030-005
qc_type	NM
units	UG/L
Pct_Solids	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-DICHLOROETHANE	1.0	U	
1,1-DICHLOROETHENE	1.0	U	
1,2-DIBROMOETHANE	0.02	U	
1,2-DICHLOROETHANE	1.0	U	
1,2-DICHLOROPROPANE	1.0	U	
2-CHLOROETHYL VINYL ETHER	1.0	U	
BENZENE	1.0	U	
BROMODICHLOROMETHANE	1.0	U	
BROMOFORM	1.0	U	
BROMOMETHANE	1.0	UR	C
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	
ETHYLBENZENE	1.0	U	
METHYL TERT-BUTYL ETHER	1.0	U	
METHYLENE CHLORIDE	1.0	U	
TETRACHLOROETHENE	1.0	U	
TOLUENE	0.42	J	P
TOTAL XYLENES	3.0	U	
TRANS-1,2-DICHLOROETHENE	1.0	U	
TRANS-1,3-DICHLOROPROPENE	1.0	U	
TRICHLOROETHENE	1.0	U	

nsample	FC-MW-05-0503
samp_date	5/6/2003
lab_id	4030-005
qc_type	NM
units	UG/L
Pct_Solids	0
DUP_OF:	

Parameter	Result	Val Qual	Qual Code
VINYL CHLORIDE	1.0	U	

PROJ_NO: 5079

SDG: 4030 MEDIA: WATER DATA FRACTION: OV

nsample	FC-MW-06-0503
samp_date	5/6/2003
lab_id	4030-003
qc_type	NM
units	UG/L
Pct_Solids	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-DICHLOROETHANE	1.0	U	
1,1-DICHLOROETHENE	1.0	U	
1,2-DIBROMOETHANE	0.02	U	
1,2-DICHLOROETHANE	1.0	U	
1,2-DICHLOROPROPANE	1.0	U	
2-CHLOROETHYL VINYL ETHER	1.0	U	
BENZENE	1.0	U	
BROMODICHLOROMETHANE	1.0	U	
BROMOFORM	1.0	U	
BROMOMETHANE	1.0	UR	C
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	
ETHYLBENZENE	1.0	U	
METHYL TERT-BUTYL ETHER	1.0	U	
METHYLENE CHLORIDE	1.0	U	
TETRACHLOROETHENE	1.0	U	
TOLUENE	1.0	U	
TOTAL XYLENES	3.0	U	
TRANS-1,2-DICHLOROETHENE	1.0	U	
TRANS-1,3-DICHLOROPROPENE	1.0	U	
TRICHLOROETHENE	1.0	U	

nsample	FC-MW-06-0503
samp_date	5/6/2003
lab_id	4030-003
qc_type	NM
units	UG/L
Pct_Solids	0
DUP_OF:	

Parameter	Result	Val Qual	Qual Code
VINYL CHLORIDE	1.0	U	

nsample	FC-MW-22-0503
samp_date	5/6/2003
lab_id	4030-004
qc_type	NM
units	UG/L
Pct_Solids	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-DICHLOROETHANE	1.0	U	
1,1-DICHLOROETHENE	1.0	U	
1,2-DIBROMOETHANE	0.02	U	
1,2-DICHLOROETHANE	1.0	U	
1,2-DICHLOROPROPANE	1.0	U	
2-CHLOROETHYL VINYL ETHER	1.0	U	
BENZENE	1.0	U	
BROMODICHLOROMETHANE	1.0	U	
BROMOFORM	1.0	U	
BROMOMETHANE	1.0	UR	C
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	
ETHYLBENZENE	48		
METHYL TERT-BUTYL ETHER	1.0	U	
METHYLENE CHLORIDE	1.0	U	
TETRACHLOROETHENE	1.0	U	
TOLUENE	1.0	U	
TOTAL XYLENES	7.7		
TRANS-1,2-DICHLOROETHENE	1.0	U	
TRANS-1,3-DICHLOROPROPENE	1.0	U	
TRICHLOROETHENE	1.0	U	

PROJ_NO: 5079

SDG: 4030 MEDIA: WATER DATA FRACTION: OV

nsample	FC-MW-22-0503	nsample	TB00329/TB00330
samp_date	5/6/2003	samp_date	5/6/2003
lab_id	4030-004	lab_id	4030-002
qc_type	NM	qc_type	NM
units	UG/L	units	UG/L
Pct_Solids	0	Pct_Solids	0
DUP_OF:		DUP_OF:	

Parameter	Result	Val Qual	Qual Code
VINYL CHLORIDE	1.0	U	

Parameter	Result	Val Qual	Qual Code
BROMODICHLOROMETHANE	1.0	U	
CHLORODIBROMOMETHANE	1.0	U	

PROJ_NO: 5079

SDG: 4030 MEDIA: WATER DATA FRACTION: PAH

nsample	FC-MW-05-0503	nsample	FC-MW-06-0503	nsample	FC-MW-22-0503
samp_date	5/6/2003	samp_date	5/6/2003	samp_date	5/6/2003
lab_id	4030-005	lab_id	4030-003	lab_id	4030-004
qc_type	NM	qc_type	NM	qc_type	NM
units	UG/L	units	UG/L	units	UG/L
Pct_Solids	0	Pct_Solids	0	Pct_Solids	0
DUP_OF:		DUP_OF:		DUP_OF:	

Parameter	Result	Val Qual	Qual Code
1-METHYLNAPHTHALENE	1.0	U	
2-METHYLNAPHTHALENE	1.0	U	
ACENAPHTHENE	1.0	U	
ACENAPHTHYLENE	1.0	U	
ANTHRACENE	1.0	U	
BENZO(A)ANTHRACENE	1.0	U	
BENZO(A)PYRENE	1.0	U	
BENZO(B)FLUORANTHENE	1.0	U	
BENZO(G,H,I)PERYLENE	1.0	U	
BENZO(K)FLUORANTHENE	1.0	U	
CHRYSENE	1.0	U	
DIBENZO(A,H)ANTHRACENE	1.0	U	
FLUORANTHENE	1.0	U	
FLUORENE	1.0	U	
INDENO(1,2,3-CD)PYRENE	1.0	U	
NAPHTHALENE	1.0	U	
PHENANTHRENE	1.0	U	
PYRENE	1.0	U	

Parameter	Result	Val Qual	Qual Code
1-METHYLNAPHTHALENE	1.0	U	
2-METHYLNAPHTHALENE	1.0	U	
ACENAPHTHENE	1.0	U	
ACENAPHTHYLENE	1.0	U	
ANTHRACENE	1.0	U	
BENZO(A)ANTHRACENE	1.0	U	
BENZO(A)PYRENE	1.0	U	
BENZO(B)FLUORANTHENE	1.0	U	
BENZO(G,H,I)PERYLENE	1.0	U	
BENZO(K)FLUORANTHENE	1.0	U	
CHRYSENE	1.0	U	
DIBENZO(A,H)ANTHRACENE	1.0	U	
FLUORANTHENE	1.0	U	
FLUORENE	1.0	U	
INDENO(1,2,3-CD)PYRENE	1.0	U	
NAPHTHALENE	1.0	U	
PHENANTHRENE	1.0	U	
PYRENE	1.0	U	

Parameter	Result	Val Qual	Qual Code
1-METHYLNAPHTHALENE	34		
2-METHYLNAPHTHALENE	70		
ACENAPHTHENE	1.0	U	
ACENAPHTHYLENE	1.0	U	
ANTHRACENE	1.0	U	
BENZO(A)ANTHRACENE	1.0	U	
BENZO(A)PYRENE	1.0	U	
BENZO(B)FLUORANTHENE	1.0	U	
BENZO(G,H,I)PERYLENE	1.0	U	
BENZO(K)FLUORANTHENE	1.0	U	
CHRYSENE	1.0	U	
DIBENZO(A,H)ANTHRACENE	1.0	U	
FLUORANTHENE	1.0	U	
FLUORENE	1.0	U	
INDENO(1,2,3-CD)PYRENE	1.0	U	
NAPHTHALENE	150		
PHENANTHRENE	1.0	U	
PYRENE	1.0	U	

PROJ_NO: 5079

SDG: 4030 MEDIA: WATER DATA FRACTION: PET

nsample	FC-MW-05-0503	nsample	FC-MW-06-0503	nsample	FC-MW-22-0503
samp_date	5/6/2003	samp_date	5/6/2003	samp_date	5/6/2003
lab_id	4030-005	lab_id	4030-003	lab_id	4030-004
qc_type	NM	qc_type	NM	qc_type	NM
units	MG/L	units	MG/L	units	MG/L
Pct_Solids	0	Pct_Solids	0	Pct_Solids	0
DUP_OF:		DUP_OF:		DUP_OF:	

Parameter	Result	Val Qual	Qual Code
TOTAL PETROLEUM HYDROCARBONS	1.2	U	A

Parameter	Result	Val Qual	Qual Code
TOTAL PETROLEUM HYDROCARBONS	1	U	A

Parameter	Result	Val Qual	Qual Code
TOTAL PETROLEUM HYDROCARBONS	6.2		

PROJ_NO: 5079

SDG: 4030 MEDIA: WATER DATA FRACTION: M

nsample	FC-MW-05-0503	nsample	FC-MW-06-0503	nsample	FC-MW-22-0503
samp_date	5/6/2003	samp_date	5/6/2003	samp_date	5/6/2003
lab_id	4030-005	lab_id	4030-003	lab_id	4030-004
qc_type	NM	qc_type	NM	qc_type	NM
units	UG/L	units	UG/L	units	UG/L
Pct_Solids	0	Pct_Solids	0	Pct_Solids	0
DUP_OF:		DUP_OF:		DUP_OF:	

Parameter	Result	Val Qual	Qual Code
LEAD	10	U	

Parameter	Result	Val Qual	Qual Code
LEAD	10	U	

Parameter	Result	Val Qual	Qual Code
LEAD	30.3		

APPENDIX B

RESULTS AS REPORTED BY THE LABORATORY

CTO 297
SDG 4030
OU
PAH
PET
M

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

AIC-MW-05D-0503

Lab Name:	ACCURA ANALYTICAL LAB	Contract:	N5079-WR342
Lab Code:	ACCURA	SAS NO. :	
Case No. :		SDG NO. :	N/A
Matrix (soil/water):	WATER	Lab Sample Id:	4030-001
Sample wt/vol:	25.00 (g/mL) ML	Lab File ID:	J051203\J07535
Level (low/med):	LOW	Date Received:	05/07/03
% Moisture: not dec.		Date Analyzed:	05/12/03
GC Column:	ZB-624 ID: .25 (mm)	Dilution Factor:	1.0
Soil Extract Volume:	(µ L)	Soil Aliquot Volume:	(µ L)

CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L

CAS NO.	COMPOUND		Q
75-27-4	Bromodichloromethane	1.0	U
124-48-1	Dibromochloromethane	1.0	U

1B

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

FC-MW-05-0503

Lab Name:	ACCURA ANALYTICAL LAB	Contract:	N5079-WR342
Lab Code:	ACCURA	SAS NO. :	
Case No. :		SDG NO.	N/A
Matrix (soil/water):	WATER	Lab Sample Id:	4030-005
Sample wt/vol	25.00 (g/mL) ML	Lab File ID:	J051203\J07539
Level (low/med):	LOW	Date Received:	05/07/03
% Moisture: not dec.		Date Analyzed:	05/12/03
GC Column:	ZB-624 ID: .25 (mm)	Dilution Factor:	1.0
Soil Extract Volume	(μ L)	Soil Aliquot Volume:	(μ L)

CONCENTRATION UNITS (ug/L or ug/Kg) ug/L

CAS NO.	COMPOUND		Q
71-55-6	1,1,1-Trichloroethane	1.0	U
79-34-5	1,1,2,2-Tetrachloroethane	1.0	U
79-00-5	1,1,2-Trichloroethane	1.0	U
75-34-3	1,1-Dichloroethane	1.0	U
75-35-4	1,1-Dichloroethene	1.0	U
107-06-2	1,2-Dichloroethane	1.0	U
78-87-5	1,2-Dichloropropane	1.0	U
110-75-8	2-Chloroethyl Vinyl Ether	1.0	U
71-43-2	Benzene	1.0	U
75-27-4	Bromodichloromethane	1.0	U
75-25-2	Bromoform	1.0	U
74-83-9	Bromomethane	1.0	U
56-23-5	Carbon Tetrachloride	1.0	U
108-90-7	Chlorobenzene	1.0	U
75-00-3	Chloroethane	1.0	U
67-66-3	Chloroform	1.0	U
74-87-3	Chloromethane	1.0	U
156-59-2	cis-1,2-Dichloroethene	1.0	U
10061-01-5	cis-1,3-Dichloropropene	1.0	U
124-48-1	Dibromochloromethane	1.0	U
100-41-4	Ethylbenzene	1.0	U
1634-04-4	Methyl tert-butyl ether	1.0	U
75-09-2	Methylene Chloride	1.0	U
127-18-4	Tetrachloroethene	1.0	U
108-88-3	Toluene	0.42	J
156-60-5	trans-1,2-dichloroethene	1.0	U
10061-02-6	trans-1,3-dichloropropene	1.0	U
79-01-6	Trichloroethene	1.0	U
75-01-4	Vinyl Chloride	1.0	U
1330-20-7	Xylenes (total)	3.0	U

1 E
SEMIVOLATILE ORGANICS ANALYSES DATA SHEET

EPA SAMPLE NO.
FC-MW-05-0503

Lab Name : ACCURA ANALYTICAL LAB Contract: N5079-WR342

Lab Code : ACCURA Case No.: _____ SAS No.: SMP SDG No.: N/A

Matrix : WATER Lab Sample Id: 4030-005

Sample wt/vol: 35 (g/ml): ML Lab File ID: 05-13-03\E02926

% Moisture: _____ Decanted: (Y/N) _____ Date Received: 05/07/03

Extraction : (Type) EXT SW8011 Date Extracted: 05/13/03

Concentrated Extract Volume: 2000 (µL) Date Analyzed: 05/13/03

Injection Volume: 2 (µL) Dilution Factor: 1.0

GPC Cleanup (Y/N): _____ pH: _____ Sulfur Cleanup (Y/N): _____

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/L

106-93-4	1,2-Dibromoethane (EDB)	0.020	U

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

FC-MW-06-0503

Lab Name:	ACCURA ANALYTICAL LAB	Contract:	N5079-WR342
Lab Code:	ACCURA	SAS NO. :	
Case No. :		SDG NO.	N/A
Matrix (soil/water):	WATER	Lab Sample Id:	4030-003
Sample wt/vol	25.00 (g/mL) ML	Lab File ID:	J051503A\J07583
Level (low/med):	LOW	Date Received:	05/07/03
% Moisture: not dec.		Date Analyzed:	05/15/03
GC Column:	ZB-624 ID: .25 (mm)	Dilution Factor:	1.0
Soil Extract Volume	(μ L)	Soil Aliquot Volume:	(μ L)

CONCENTRATION UNITS (ug/L or ug/Kg) ug/L

CAS NO.	COMPOUND		Q
71-55-6	1,1,1-Trichloroethane	1.0	U
79-34-5	1,1,2,2-Tetrachloroethane	1.0	U
79-00-5	1,1,2-Trichloroethane	1.0	U
75-34-3	1,1-Dichloroethane	1.0	U
75-35-4	1,1-Dichloroethene	1.0	U
107-06-2	1,2-Dichloroethane	1.0	U
78-87-5	1,2-Dichloropropane	1.0	U
110-75-8	2-Chloroethyl Vinyl Ether	1.0	U
71-43-2	Benzene	1.0	U
75-27-4	Bromodichloromethane	1.0	U
75-25-2	Bromoform	1.0	U
74-83-9	Bromomethane	1.0	U
56-23-5	Carbon Tetrachloride	1.0	U
108-90-7	Chlorobenzene	1.0	U
75-00-3	Chloroethane	1.0	U
67-66-3	Chloroform	1.0	U
74-87-3	Chloromethane	1.0	U
156-59-2	cis-1,2-Dichloroethene	1.0	U
10061-01-5	cis-1,3-Dichloropropene	1.0	U
124-48-1	Dibromochloromethane	1.0	U
100-41-4	Ethylbenzene	1.0	U
1634-04-4	Methyl tert-butyl ether	1.0	U
75-09-2	Methylene Chloride	1.0	U
127-18-4	Tetrachloroethene	1.0	U
108-88-3	Toluene	1.0	U
156-60-5	trans-1,2-dichloroethene	1.0	U
10061-02-6	trans-1,3-dichloropropene	1.0	U
79-01-6	Trichloroethene	1.0	U
75-01-4	Vinyl Chloride	1.0	U
1330-20-7	Xylenes (total)	3.0	U

1 E
SEMIVOLATILE ORGANICS ANALYSES DATA SHEET

EPA SAMPLE NO.
FC-MW-06-0503

Lab Name : ACCURA ANALYTICAL LAB
Contract: N5079-WR342
Lab Code : ACCURA
Case No.: _____
SAS No.: SMP
SDG No.: N/A
Matrix : WATER
Lab Sample Id: 4030-003
Sample wt/vol: 35 (g/ml): ML
Lab File ID: 05-13-03\E02922
% Moisture: _____ Decanted: (Y/N) _____
Date Received: 05/07/03
Extraction : (Type) EXT SW8011
Date Extracted: 05/13/03
Concentrated Extract Volume: 2000 (µ L)
Date Analyzed: 05/13/03
Injection Volume: 2 (µ L)
Dilution Factor: 1.0
GPC Cleanup (Y/N): _____ pH: _____
Sulfur Cleanup (Y/N): _____

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/L

106-93-4	1,2-Dibromoethane (EDB)	0.020	U

1B

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

FC-MW-22-0503

Lab Name:	ACCURA ANALYTICAL LAB	Contract:	N5079-WR342
Lab Code:	ACCURA	SAS NO. :	
Case No. :		SDG NO.	N/A
Matrix (soil/water):	WATER	Lab Sample Id:	4030-004
Sample wt/vol	25.00 (g/mL) ML	Lab File ID:	J051203\J07538
Level (low/med):	LOW	Date Received:	05/07/03
% Moisture: not dec.		Date Analyzed:	05/12/03
GC Column:	ZB-624 ID: .25 (mm)	Dilution Factor:	1.0
Soil Extract Volume	(μ L)	Soil Aliquot Volume:	(μ L)

CONCENTRATION UNITS (ug/L or ug/Kg) ug/L

CAS NO.	COMPOUND		Q
71-55-6	1,1,1-Trichloroethane	1.0	U
79-34-5	1,1,2,2-Tetrachloroethane	1.0	U
79-00-5	1,1,2-Trichloroethane	1.0	U
75-34-3	1,1-Dichloroethane	1.0	U
75-35-4	1,1-Dichloroethene	1.0	U
107-06-2	1,2-Dichloroethane	1.0	U
78-87-5	1,2-Dichloropropane	1.0	U
110-75-8	2-Chloroethyl Vinyl Ether	1.0	U
71-43-2	Benzene	1.0	U
75-27-4	Bromodichloromethane	1.0	U
75-25-2	Bromoform	1.0	U
74-83-9	Bromomethane	1.0	U
56-23-5	Carbon Tetrachloride	1.0	U
108-90-7	Chlorobenzene	1.0	U
75-00-3	Chloroethane	1.0	U
67-66-3	Chloroform	1.0	U
74-87-3	Chloromethane	1.0	U
156-59-2	cis-1,2-Dichloroethene	1.0	U
10061-01-5	cis-1,3-Dichloropropene	1.0	U
124-48-1	Dibromochloromethane	1.0	U
100-41-4	Ethylbenzene	44	E
1634-04-4	Methyl tert-butyl ether	1.0	U
75-09-2	Methylene Chloride	1.0	U
127-18-4	Tetrachloroethene	1.0	U
108-88-3	Toluene	1.0	U
156-60-5	trans-1,2-dichloroethene	1.0	U
10061-02-6	trans-1,3-dichloropropene	1.0	U
79-01-6	Trichloroethene	1.0	U
75-01-4	Vinyl Chloride	1.0	U
1330-20-7	Xylenes (total)	7.7	

1 E
SEMIVOLATILE ORGANICS ANALYSES DATA SHEET

EPA SAMPLE NO.
FC-MW-22-0503

Lab Name : ACCURA ANALYTICAL LAB
Contract: N5079-WR342
Lab Code : ACCURA
Case No.: _____
SAS No.: SMP
SDG No.: N/A
Matrix : WATER
Lab Sample Id: 4030-004
Sample wt/vol: 35 (g/ml): ML
Lab File ID: 05-13-03\E02925
% Moisture: _____ Decanted: (Y/N) _____
Date Received: 05/07/03
Extraction : (Type) EXT_SW8011
Date Extracted: 05/13/03
Concentrated Extract Volume: 2000 (µL)
Date Analyzed: 05/13/03
Injection Volume: 2 (µL)
Dilution Factor: 1.0
GPC Cleanup (Y/N): _____ pH: _____
Sulfur Cleanup (Y/N): _____

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/L

106-93-4	1,2-Dibromoethane (EDB)	0.020	U

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

FC-MW-22-0503DL

Lab Name:	ACCURA ANALYTICAL LAB	Contract:	N5079-WR342
Lab Code:	ACCURA	SAS NO. :	
Case No. :		SDG NO.	N/A
Matrix (soil/water):	WATER	Lab Sample Id:	4030-004 DL
Sample wt/vol	1.00 (g/mL) ML	Lab File ID:	J051203\J07540
Level (low/med):	LOW	Date Received:	05/07/03
% Moisture: not dec.		Date Analyzed:	05/12/03
GC Column:	ZB-624 ID: .25 (mm)	Dilution Factor:	5.0
Soil Extract Volume	(μ L)	Soil Aliquot Volume:	(μ L)

CONCENTRATION UNITS (ug/L or ug/Kg) ug/L

CAS NO.	COMPOUND		Q
71-55-6	1,1,1-Trichloroethane	5.0	U
79-34-5	1,1,2,2-Tetrachloroethane	5.0	U
79-00-5	1,1,2-Trichloroethane	5.0	U
75-34-3	1,1-Dichloroethane	5.0	U
75-35-4	1,1-Dichloroethene	5.0	U
107-06-2	1,2-Dichloroethane	5.0	U
78-87-5	1,2-Dichloropropane	5.0	U
110-75-8	2-Chloroethyl Vinyl Ether	5.0	U
71-43-2	Benzene	5.0	U
75-27-4	Bromodichloromethane	5.0	U
75-25-2	Bromoform	5.0	U
74-83-9	Bromomethane	5.0	U
56-23-5	Carbon Tetrachloride	5.0	U
108-90-7	Chlorobenzene	5.0	U
75-00-3	Chloroethane	5.0	U
67-66-3	Chloroform	5.0	U
74-87-3	Chloromethane	5.0	U
156-59-2	cis-1,2-Dichloroethene	5.0	U
10061-01-5	cis-1,3-Dichloropropene	5.0	U
124-48-1	Dibromochloromethane	5.0	U
100-41-4	Ethylbenzene	48	D
1634-04-4	Methyl tert-butyl ether	5.0	U
75-09-2	Methylene Chloride	5.0	U
127-18-4	Tetrachloroethene	5.0	U
108-88-3	Toluene	5.0	U
156-60-5	trans-1,2-dichloroethene	5.0	U
10061-02-6	trans-1,3-dichloropropene	5.0	U
79-01-6	Trichloroethene	5.0	U
75-01-4	Vinyl Chloride	5.0	U
1330-20-7	Xylenes (total)	7.2	JD

1B

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

TB00329/TB00330

Lab Name:	ACCURA ANALYTICAL LAB	Contract:	N5079-WR342
Lab Code:	ACCURA	SAS NO. :	
Case No. :		SDG NO. :	N/A
Matrix (soil/water):	WATER	Lab Sample Id:	4030-002
Sample wt/vol:	25.00 (g/mL) ML	Lab File ID:	J051203\J07536
Level (low/med):	LOW	Date Received:	05/07/03
% Moisture: not dec.		Date Analyzed:	05/12/03
GC Column:	ZB-624 ID: .25 (mm)	Dilution Factor:	1.0
Soil Extract Volume	(μ L)	Soil Aliquot Volume:	(μ L)

CONCENTRATION UNITS (ug/L or ug/Kg) ug/L

CAS NO.	COMPOUND		Q
75-27-4	Bromodichloromethane	1.0	U
124-48-1	Dibromochloromethane	1.0	U

1C

SEMIVOLATILE ORGANICS ANALYSES DATA SHEET

EPA SAMPLE NO.

FC-MW-05-0503

Lab Name : ACCURA ANALYTICAL LAB Contract: N5079-WR342

Lab Code : ACCURA Case No.: SAS No.: SDG No.: N/A

Matrix : (soil/water) WATER Lab Sample Id: 4030-005

Sample wt/vol: 1000 (g/ml): ML Lab File ID: 1B051503\B42159

Level : (low/med) LOW Date Received: 05/07/03

% Moisture: Decanted: (Y/N) N Date Extracted: 05/13/03

Concentrated Extract Volume: 1000 (µ L) Date Analyzed: 05/15/03

Injection Volume: 1.0 (µ L) Dilution Factor: 1.0

GPC Cleanup (Y/N): N pH: N/A Extraction : (Type) SW3520C

CONCENTRATION UNITS:

CAS NO.	COMPOUND	(ug/L or ug/Kg) ug/L	Q
90-12-0	1-Methylnaphthalene	1.0	U
91-57-6	2-Methylnaphthalene	1.0	U
83-32-9	Acenaphthene	1.0	U
208-96-8	Acenaphthylene	1.0	U
120-12-7	Anthracene	1.0	U
56-55-3	Benzo(a)anthracene	1.0	U
50-32-8	Benzo(a)pyrene	1.0	U
205-99-2	Benzo(b)fluoranthene	1.0	U
191-24-2	Benzo(g,h,i)perylene	1.0	U
207-08-9	Benzo(k)fluoranthene	1.0	U
218-01-9	Chrysene	1.0	U
53-70-3	Dibenz(a,h)Anthracene	1.0	U
206-44-0	Fluoranthene	1.0	U
86-73-7	Fluorene	1.0	U
193-39-5	Indeno(1,2,3-c,d)Pyrene	1.0	U
91-20-3	Naphthalene	1.0	U
85-01-8	Phenanthrene	1.0	U
129-00-0	Pyrene	1.0	U

1D

SEMIVOLATILE ORGANICS ANALYSES DATA SHEET

EPA SAMPLE NO.

FC-MW-06-0503

Lab Name : ACCURA ANALYTICAL LAB

Contract: N5079-WR342

Lab Code : ACCURA

Case No.:

SAS No.:

SDG No.: N/A

Matrix : (soil/water) WATER

Lab Sample Id: 4030-003

Sample wt/vol: 1000 (g/ml): ML

Lab File ID: 1B051503\B42157

Level : (low/med) LOW

Date Received: 05/07/03

% Moisture:

Decanted: (Y/N) N

Date Extracted: 05/13/03

Concentrated Extract Volume: 1000 (µ L)

Date Analyzed: 05/15/03

Injection Volume: 1.0 (µ L)

Dilution Factor: 1.0

GPC Cleanup (Y/N): N

pH: N/A

Extraction : (Type) SW3520C

CONCENTRATION UNITS:

CAS NO.	COMPOUND	(ug/L or ug/Kg) ug/L	Q
90-12-0	1-Methylnaphthalene	1.0	U
91-57-6	2-Methylnaphthalene	1.0	U
83-32-9	Acenaphthene	1.0	U
208-96-8	Acenaphthylene	1.0	U
120-12-7	Anthracene	1.0	U
56-55-3	Benzo(a)anthracene	1.0	U
50-32-8	Benzo(a)pyrene	1.0	U
205-99-2	Benzo(b)fluoranthene	1.0	U
191-24-2	Benzo(g,h,i)perylene	1.0	U
207-08-9	Benzo(k)fluoranthene	1.0	U
218-01-9	Chrysene	1.0	U
53-70-3	Dibenz(a,h)Anthracene	1.0	U
206-44-0	Fluoranthene	1.0	U
86-73-7	Fluorene	1.0	U
193-39-5	Indeno(1,2,3-c,d)Pyrene	1.0	U
91-20-3	Naphthalene	1.0	U
85-01-8	Phenanthrene	1.0	U
129-00-0	Pyrene	1.0	U

1C

SEMIVOLATILE ORGANICS ANALYSES DATA SHEET

EPA SAMPLE NO.

FC-MW-22-0503

Lab Name : ACCURA ANALYTICAL LAB

Contract: N5079-WR342

Lab Code : ACCURA

Case No.:

SAS No.:

SDG No.: N/A

Matrix : (soil/water) WATER

Lab Sample Id: 4030-004

Sample wt/vol: 1000 (g/ml): ML

Lab File ID: 1B051503\B42158

Level : (low/med) LOW

Date Received: 05/07/03

% Moisture:

Decanted: (Y/N) N

Date Extracted: 05/13/03

Concentrated Extract Volume: 1000 (µ L)

Date Analyzed: 05/15/03

Injection Volume: 1.0 (µ L)

Dilution Factor: 1.0

GPC Cleanup (Y/N): N

pH: N/A

Extraction : (Type) SW3520C

CONCENTRATION UNITS:

CAS NO.	COMPOUND	(ug/L or ug/Kg) ug/L	Q
90-12-0	1-Methylnaphthalene	34	
91-57-6	2-Methylnaphthalene	70	
83-32-9	Acenaphthene	1.0	U
208-96-8	Acenaphthylene	1.0	U
120-12-7	Anthracene	1.0	U
56-55-3	Benzo(a)anthracene	1.0	U
50-32-8	Benzo(a)pyrene	1.0	U
205-99-2	Benzo(b)fluoranthene	1.0	U
191-24-2	Benzo(g,h,i)perylene	1.0	U
207-08-9	Benzo(k)fluoranthene	1.0	U
218-01-9	Chrysene	1.0	U
53-70-3	Dibenz(a,h)Anthracene	1.0	U
206-44-0	Fluoranthene	1.0	U
86-73-7	Fluorene	1.0	U
193-39-5	Indeno(1,2,3-c,d)Pyrene	1.0	U
91-20-3	Naphthalene	150	
85-01-8	Phenanthrene	1.0	U
129-00-0	Pyrene	1.0	U

1C

SEMIVOLATILE ORGANICS ANALYSES DATA SHEET

EPA SAMPLE NO.

FC-MW-05-0503

Lab Name : ACCURA ANALYTICAL LAB

Contract: N5079-WR342

Lab Code : ACCURA

Case No.:

SAS No.:

SDG No.: N/A

Matrix : (soil/water) WATER

Lab Sample Id: 4030-005

Sample wt/vol: 1000 (g/ml): ML

Lab File ID: 1O051203\O002174

Level : (low/med) LOW

Date Received: 05/07/03

% Moisture:

Decanted: (Y/N) N

Date Extracted: 05/12/03

Concentrated Extract Volume: 2000 (µ L)

Date Analyzed: 05/13/03

Injection Volume: 1.0 (µ L)

Dilution Factor: 1.0

GPC Cleanup (Y/N): N

pH: N/A

Extraction : (Type) SW3520C

CONCENTRATION UNITS:

CAS NO.	COMPOUND	(ug/L or ug/Kg) mg/L	Q
	Petroleum Range Organics	1.2	JB

1D

SEMIVOLATILE ORGANICS ANALYSES DATA SHEET

EPA SAMPLE NO.

FC-MW-06-0503

Lab Name : ACCURA ANALYTICAL LAB

Contract: N5079-WR342

Lab Code : ACCURA

Case No.:

SAS No.:

SDG No.: N/A

Matrix : (soil/water) WATER

Lab Sample Id: 4030-003

Sample wt/vol: 1000 (g/ml): ML

Lab File ID: 1O051203\O002172

Level : (low/med) LOW

Date Received: 05/07/03

% Moisture:

Decanted: (Y/N) N

Date Extracted: 05/12/03

Concentrated Extract Volume: 2000 (µ L)

Date Analyzed: 05/13/03

Injection Volume: 1.0 (µ L)

Dilution Factor: 1.0

GPC Cleanup (Y/N): N

pH: N/A

Extraction : (Type) SW3520C

CONCENTRATION UNITS:

CAS NO.	COMPOUND	(ug/L or ug/Kg) mg/L	Q
	Petroleum Range Organics	1.0	JB

FORM I SV-2

FL_PRO

1C

SEMIVOLATILE ORGANICS ANALYSES DATA SHEET

EPA SAMPLE NO.

FC-MW-22-0503

Lab Name : ACCURA ANALYTICAL LAB

Contract: N5079-WR342

Lab Code : ACCURA

Case No.:

SAS No.:

SDG No.: N/A

Matrix : (soil/water) WATER

Lab Sample Id: 4030-004

Sample wt/vol: 1000 (g/ml): ML

Lab File ID: 1O051203\O002173

Level : (low/med) LOW

Date Received: 05/07/03

% Moisture:

Decanted: (Y/N) N

Date Extracted: 05/12/03

Concentrated Extract Volume: 2000 (µ L)

Date Analyzed: 05/13/03

Injection Volume: 1.0 (µ L)

Dilution Factor: 1.0

GPC Cleanup (Y/N): N

pH: N/A

Extraction : (Type) SW3520C

CONCENTRATION UNITS:

CAS NO.	COMPOUND	(ug/L or ug/Kg) mg/L	Q
	Petroleum Range Organics	6.2	B

USEPA - CLP

1A- IN
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

FC-MW-05-0503

Lab Name: ACCURA ANALYTICAL LAB. Contract: N5079-WR342

Lab Code: ACCURA Case No.: _____ NRAS No. _____ SDG No.: N/A

Matrix (soil/water): WATER Lab Sample ID: 4030-005

Level (low/med): LOW Date Received: 05/07/2003

% Solids: _____

Concentration Units (ug/ L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7439-92-1	Lead	10	U		P

Color Before _____ Clarity Before _____ Texture: _____

Color After: _____ Clarity After: _____ Artifacts: _____

Comments: _____

USEPA - CLP

1A- IN
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

FC-MW-06-0503

Lab Name: ACCURA ANALYTICAL LAB. Contract: N5079-WR342

Lab Code: ACCURA Case No.: _____ NRAS No. _____ SDG No.: N/A

Matrix (soil/water): WATER Lab Sample ID: 4030-003

Level (low/med): LOW Date Received: 05/07/2003

% Solids: _____

Concentration Units (ug/ L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7439-92-1	Lead	10	U		P

Color Before _____ Clarity Before _____ Texture: _____

Color After: _____ Clarity After: _____ Artifacts: _____

Comments: _____

USEPA - CLP

1A- IN
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

FC-MW-22-0503

Lab Name: ACCURA ANALYTICAL LAB. Contract: N5079-WR342

Lab Code: ACCURA Case No.: _____ NRAS No. _____ SDG No.: N/A

Matrix (soil/water): WATER Lab Sample ID: 4030-004

Level (low/med): LOW Date Received: 05/07/2003

% Solids: _____

Concentration Units (ug/ L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7439-92-1	Lead	30.3			P

Color Before _____ Clarity Before _____ Texture: _____

Color After: _____ Clarity After: _____ Artifacts: _____

Comments: _____

APPENDIX C

SUPPORT DOCUMENTATION

4030

HOLDING TIME

06/16/03

Units	Nsample	Lab Id	Qc Type	Sdg	Sort	Samp Date	Extr Date	Anal Date	SAMP_DATE TO EXTR_DATE	EXTR_DATE TO ANAL_DATE	SAMP_DATE TO ANAL_DATE
UG/L	15289 BKS	15289 BKS	LCS	4030	EDB	/ /	05/13/03	05/13/03	0	0	0
UG/L	15289 BLK	15289 BLK	M_BLANK	4030	EDB	/ /	05/13/03	05/13/03	0	0	0
UG/L	FC-MW-05-0503	4030-005	NORMAL	4030	EDB	05/06/03	05/13/03	05/13/03	7	0	7
UG/L	FC-MW-06-0503	4030-003	NORMAL	4030	EDB	05/06/03	05/13/03	05/13/03	7	0	7
UG/L	FC-MW-06-0503 MS	4030-003 MS	MS	4030	EDB	05/06/03	05/13/03	05/13/03	7	0	7
UG/L	FC-MW-06-0503 MSD	4030-003 MSD	MSD	4030	EDB	05/06/03	05/13/03	05/13/03	7	0	7
UG/L	FC-MW-22-0503	4030-004	NORMAL	4030	EDB	05/06/03	05/13/03	05/13/03	7	0	7
UG/L	15350 BKS	15350 BKS	LCS	4030	M	/ /	05/14/03	05/16/03	0	2	0
UG/L	15350 BLK	15350 BLK	M_BLANK	4030	M	/ /	05/14/03	05/16/03	0	2	0
UG/L	15350 BSD	15350 BSD	LCSD	4030	M	/ /	05/14/03	05/16/03	0	2	0
UG/L	FC-MW-05-0503	4030-005	NORMAL	4030	M	05/06/03	05/14/03	05/16/03	8	2	10
UG/L	FC-MW-06-0503	4030-003	NORMAL	4030	M	05/06/03	05/14/03	05/16/03	8	2	10
UG/L	FC-MW-22-0503	4030-004	NORMAL	4030	M	05/06/03	05/14/03	05/16/03	8	2	10
UG/L	TPB0QGLMW1201 MS	4054-007 MS	MS	4030	M	05/08/03	05/14/03	05/16/03	6	2	8
UG/L	TPB0QGLMW1201 MSD	4054-007 MSD	MSD	4030	M	05/08/03	05/14/03	05/16/03	6	2	8
UG/L	15270 BKS	15270 BKS	LCS	4030	OV	/ /	05/12/03	05/12/03	0	0	0
UG/L	15270 BLK	15270 BLK	M_BLANK	4030	OV	/ /	05/12/03	05/12/03	0	0	0
%	AIC-MW-05D-0503	4030-001	NORMAL	4030	OV	05/06/03	05/12/03	05/12/03	6	0	6
UG/L	FC-MW-05-0503	4030-005	NORMAL	4030	OV	05/06/03	05/12/03	05/12/03	6	0	6
UG/L	FC-MW-22-0503	4030-004	NORMAL	4030	OV	05/06/03	05/12/03	05/12/03	6	0	6
UG/L	FC-MW-22-0503DL	4030-004 DL	DIL	4030	OV	05/06/03	05/12/03	05/12/03	6	0	6
%	TB00329/TB00330	4030-002	NORMAL	4030	OV	05/06/03	05/12/03	05/12/03	6	0	6
UG/L	15307 BKS	15307 BKS	LCS	4030	PAH	/ /	05/13/03	05/15/03	0	2	0
UG/L	15307 BLK	15307 BLK	M_BLANK	4030	PAH	/ /	05/13/03	05/15/03	0	2	0

Units	Nsample	Lab Id	Qc Type	Sdg	Sort	Samp Date	Extr Date	Anal Date	SAMP_DATE TO EXTR_DATE	EXTR_DATE TO ANAL_DATE	SAMP_DATE TO ANAL_DATE
UG/L	FC-MW-05-0503	4030-005	NORMAL	4030	PAH	05/06/03	05/13/03	05/15/03	7	2	9
UG/L	FC-MW-06-0503	4030-003	NORMAL	4030	PAH	05/06/03	05/13/03	05/15/03	7	2	9
UG/L	FC-MW-06-0503 MS	4030-003 MS	MS	4030	PAH	05/06/03	05/13/03	05/15/03	7	2	9
UG/L	FC-MW-06-0503 MSD	4030-003 MSD	MSD	4030	PAH	05/06/03	05/13/03	05/15/03	7	2	9
UG/L	FC-MW-22-0503	4030-004	NORMAL	4030	PAH	05/06/03	05/13/03	05/15/03	7	2	9
MG/L	15287 BKS	15287 BKS	LCS	4030	TPH	/ /	05/12/03	05/13/03	0	1	0
MG/L	15287 BLK	15287 BLK	M_BLANK	4030	TPH	/ /	05/12/03	05/13/03	0	1	0
MG/L	FC-MW-05-0503	4030-005	NORMAL	4030	TPH	05/06/03	05/12/03	05/13/03	6	1	7
MG/L	FC-MW-06-0503	4030-003	NORMAL	4030	TPH	05/06/03	05/12/03	05/13/03	6	1	7
MG/L	FC-MW-22-0503	4030-004	NORMAL	4030	TPH	05/06/03	05/12/03	05/13/03	6	1	7
MG/L	TPB0QGLMW0601 MS	4054-001 MS	MS	4030	TPH	05/08/03	05/12/03	05/13/03	4	1	5
MG/L	TPB0QGLMW0601 MSD	4054-001 MSD	MSD	4030	TPH	05/08/03	05/12/03	05/13/03	4	1	5

AAL LOT# ~~5040~~ 4030

TETRA TECH NUS, INC. CHAIN OF CUSTODY | NUMBER 3840 PAGE 1 OF 1

PROJECT NO:	FACILITY:	PROJECT MANAGER	PHONE NUMBER	LABORATORY NAME AND CONTACT:
CTO 297	NAS Key West	Chuck Bryan	803-649-7963	Accura - David Fuller
SAMPLERS (SIGNATURE)		FIELD OPERATIONS LEADER	PHONE NUMBER	ADDRESS
E McKee, Gary Bryan		Emily McKee	305-216-7108	6017 Financial Drive
		CARRIER/WAYBILL NUMBER		CITY, STATE
		8370 0119 8692		NorCross, GA 30071

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

CONTAINER TYPE PLASTIC (P) or GLASS (G): G, G, G, G, G, P

PRESERVATIVE USED: HCl, HCl, HCl, /, /, HNO_3

DATE YEAR 2003	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	VOCs	PPL VOCs + BTEX, MTBE, 1-2 dichloroethane	TRPH	PAH	EDB	Lead			COMMENTS
5/6	1005	AIC-MW-05D-0503	AIC-MW-05D	—	—	GW	G	3	X					4030-00		1	Report bromodichloromethane + chlorodibromomethane only
		TB00329/TB00330				QC		2	X							2	
5/6	1510	FC-MW-06-0503	FC-MW-06	—	—	GW	G	11		X	X	X	X	X		3	
5/6	1515	FC-MW-22-0503	FC-MW-22	—	—	GW	G	11		X	X	X	X	X		4	
5/6	1630	FC-MW-05-0503	FC-MW-05	—	—	GW	G	11		X	X	X	X	X		5	

	DATE	TIME		DATE	TIME
1. RELINQUISHED BY: E McKee	5/6/03	1800	1. RECEIVED BY: FED EX		
2. RELINQUISHED BY: FED EX	050703	0920	2. RECEIVED BY: [signature]	050703	0920
3. RELINQUISHED BY:			3. RECEIVED BY:		

COMMENTS: 11340

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

4/02R
FORM NO. TtNUS-001

ACCURA ANALYTICAL LABORATORY, INC. (AAL)

6017 Financial Drive, Norcross, Georgia, 30071, Phone (770) 449-8800
FL Certification #E87429 LA Certification #04079 NC Certification #483
SC Certification #98015 USACE-MRD Approved

Case Narrative

AAL Work Order # 4030

Client Project: NAS Key West / CTO # 279
Project Number: N5079-WR342
Project Manager: Chuck Bryan

Accura Analytical Laboratory Inc. certifies that the results meet all requirements of the NELAC Standards.

The data package includes a 4 page case narrative, 380 report pages and a list of common EPA qualifier codes.

The following items were noted concerning this work order:

Receiving Notations:

1. The following samples were received at Accura Analytical Laboratory Inc. on May 7, 2003 at 9:20am:

Client Sample ID		AAL Work Order Number
AIC-MW-05D-0503	FC-MW-22-0503	4030
TB00329/TB00330	FC-MW-05-0503	
FC-MW-06-0503		

2. The samples were received at 2°C.

Brian G Burns — *May 7, 2003*
Brian Burns — Date
Receiving

VOC Notations:

1. The pH of the water samples was <2.0 prior to the VOC analysis.

2. The following samples required dilution due to high analyte concentration, resulting in elevated detection limits:

   VOC-SW-846-8260B
   FC-MW-22-0503

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3. The following surrogates were outside the laboratory-derived limit due to possible matrix interference, as indicated by the "*" qualifier:

   VOC-SW-846-8260B
   Bromofluorobenzene - FC-MW-22-0503

4. The following spike recoveries were outside the laboratory-derived limits due to possible matrix interference:

   VOC-SW-846-8260B
   Matrix Spike – 2-Chloroethyl Vinyl Ether – FC-MW-06-0503
   Matrix Spike Duplicate – 2-Chloroethyl Vinyl Ether – FC-MW-06-0503
   Trichloroethane – COLDWAT12112

5. The relative percent difference between the matrix spike and matrix spike duplicate was outside the laboratory-derived limit:

   VOC-SW-846-8260B
   2-Chloroethyl Vinyl Ether – FC-MW-06-0503

Debra Trinidad — *May 15, 2003*
Debra Trinidad — Date
VOC Analyst

SVOC/PAH Notations:

1. The following spike recoveries were outside the laboratory-derived limits due to possible matrix interference:

   SVOC-SW-846-8270C
   Matrix Spike –
   Matrix Spike Duplicate –Indeno[1,2,3-c,d]pyrene, Dibenz[a,h]anthracene

2. The relative percent difference between the matrix spike and matrix spike duplicate was outside the laboratory-derived limit for the following analytes:

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Case Narrative

SVOC-SW-846-8270C
Chrysene, Benzo[b]fluoranthene, Benzo[k]fluoranthene, Benzo[a]pyrene, Indeno[1,2,3-c,d]pyrene, Dibenz[a,h]anthracene, Benzo[g,h,i]perylene

Chris Pittman — *May 28, 2003*
Chris Pittman — Date
SVOC Analyst

Florida Pro Notations:

1. The Method Blank contained Florida Pro at a concentration that was less than the reporting limit but above the detection limit. The concentration of Florida Pro in sample FC-MW-05-0503 and FC-MW-06-0503 was also within this range. The concentration of Florida Pro in sample FC-MW-22-0503 was above the reporting limit. Both results may have been affected by the blank result.

2. The recovery of surrogate C-39 in sample FC-MW-06-0503 was below the test method acceptance limit. The recovery of o-terphenyl surrogate in this sample was within test method specified limits. The low recovery may have impacted the reported result.

3. The recovery of o-terphenyl surrogate in the blank, blank spike, spike and duplicate spike samples was below test method acceptance limits of 83% in water. The recovery of this surrogate was within laboratory-derived acceptance criteria.

Brent Wren — *June 2, 2003*
Brent Wren — Date
DRO Analyst

I certify that the electronic diskette deliverables exactly match the data summary forms for this report.

June 03, 2003
John Amirtham — Date
Manager-Quality Assurance

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6017 Financial Drive, Norcross, Georgia, 30071, Phone (770) 449-8800
FL Certification #E87429 LA Certification #04079 NC Certification #483
SC Certification #98015 USACE-MRD Approved

Case Narrative

These case narrative notations have been reviewed by:

David C. Fuller
VP – Client Services

June 3, 2003
Date

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4A
VOLATILE METHOD BLANK SUMMARY

EPA SAMPLE NO.
15270 BLK

Lab Name : ACCURA ANALYTICAL LAB Contract : N5079-WR342

Lab Code : ACCURA Case No. : _____ SAS No. : _____

Lab File ID J051203\J07533 SDG No. : N/A

Date Analyzed 05/12/03 Lab Sample ID : J051203\J07533

GC Column : ZB-624 ID : .25 (mm) Time Analyzed : 13:20

Instrument ID : HP-MSJ Heated Purge (Y/N) : _____

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD

EPA SAMPLE NO..	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
1 15270 BKS	15270 BKS	J051203\J07534	13:50
2 AIC-MW-05D-0503	4030-001	J051203\J07535	14:22
3 TB00329/TB00330	4030-002	J051203\J07536	14:48
4 FC-MW-22-0503	4030-004	J051203\J07538	16:15
5 FC-MW-05-0503	4030-005	J051203\J07539	16:41
6 FC-MW-22-0503DL	4030-004 DL	J051203\J07540	17:10

Comments _____

4A
VOLATILE METHOD BLANK SUMMARY

EPA SAMPLE NO.

15270 BLK

Lab Name : ACCURA ANALYTICAL LAB Contract : N5079-WR342

Lab Code : ACCURA Case No. : _____ SAS No. : _____

Lab File ID J051203\J07533 SDG No. : N/A

Date Analyzed 05/12/03 Lab Sample ID : J051203\J07533

GC Column : ZB-624 ID : .25 (mm) Time Analyzed : 13:20

Instrument ID : HP-MSJ Heated Purge (Y/N) : _____

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD

EPA SAMPLE NO..	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
1 FC-MW-22-0503DL	4030-004 DL	J051203\J07540	17:10

Comments _____

1B

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

15270 BLK

Lab Name: ACCURA ANALYTICAL LAB

Contract: N5079-WR342

Lab Code: ACCURA

SAS NO. :

Case No. :

SDG NO. N/A

Matrix (soil/water): WATER

Lab Sample Id: 15270 BLK

Sample wt/vol 25.00 (g/mL) ML

Lab File ID: J051203\J07533

Level (low/med): LOW

Date Received:

% Moisture: not dec. 0

Date Analyzed: 05/12/03

GC Column: ZB-624 ID: .25 (mm)

Dilution Factor: 1.0

Soil Extract Volume (μ L)

Soil Aliquot Volume: (μ L)

CONCENTRATION UNITS (ug/L or ug/Kg) ug/L

CAS NO.	COMPOUND		Q
71-55-6	1,1,1-Trichloroethane	1.0	U
79-34-5	1,1,2,2-Tetrachloroethane	1.0	U
79-00-5	1,1,2-Trichloroethane	1.0	U
75-34-3	1,1-Dichloroethane	1.0	U
75-35-4	1,1-Dichloroethene	1.0	U
107-06-2	1,2-Dichloroethane	1.0	U
78-87-5	1,2-Dichloropropane	1.0	U
110-75-8	2-Chloroethyl Vinyl Ether	1.0	U
71-43-2	Benzene	1.0	U
75-27-4	Bromodichloromethane	1.0	U
75-25-2	Bromoform	1.0	U
74-83-9	Bromomethane	1.0	U
56-23-5	Carbon Tetrachloride	1.0	U
108-90-7	Chlorobenzene	1.0	U
75-00-3	Chloroethane	1.0	U
67-66-3	Chloroform	1.0	U
74-87-3	Chloromethane	1.0	U
156-59-2	cis-1,2-Dichloroethene	1.0	U
10061-01-5	cis-1,3-Dichloropropene	1.0	U
124-48-1	Dibromochloromethane	1.0	U
100-41-4	Ethylbenzene	1.0	U
1634-04-4	Methyl tert-butyl ether	1.0	U
75-09-2	Methylene Chloride	1.0	U
127-18-4	Tetrachloroethene	1.0	U
108-88-3	Toluene	1.0	U
156-60-5	trans-1,2-dichloroethene	1.0	U
10061-02-6	trans-1,3-dichloropropene	1.0	U
79-01-6	Trichloroethene	1.0	U
75-01-4	Vinyl Chloride	1.0	U
1330-20-7	Xylenes (total)	3.0	U

4A
VOLATILE METHOD BLANK SUMMARY

EPA SAMPLE NO.
15325 BLK

Lab Name : ACCURA ANALYTICAL LAB Contract : N5079-WR342

Lab Code : ACCURA Case No. : _____ SAS No. : _____

Lab File ID J051503A\J07580 SDG No. : N/A

Date Analyzed 05/15/03 Lab Sample ID : J051503A\J07580

GC Column : ZB-624 ID : .25 (mm) Time Analyzed : 17:43

Instrument ID : HP-MSJ Heated Purge (Y/N) : _____

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD

EPA SAMPLE NO..	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
1 15325 BKS	15325 BKS	J051503A\J07581	18:16
2 FC-MW-06-0503	4030-003	J051503A\J07583	19:07
3 FC-MW-06-0503MS	4030-003 MS	J051503A\J07584	19:34
4 FC-MW-06-0503MSD	4030-003 MSD	J051503A\J07585	19:58
5 COLDWAT12112MS	4091-002 MS	J051503A\J07593	23:22
6 COLDWAT12112MSD	4091-002 MSD	J051503A\J07594	23:48

Comments _____

1B

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

15325 BLK

Lab Name: ACCURA ANALYTICAL LAB

Contract: N5079-WR342

Lab Code: ACCURA

SAS NO. :

Case No. :

SDG NO. N/A

Matrix (soil/water): WATER

Lab Sample Id: 15325 BLK

Sample wt/vol 25.00 (g/mL) ML

Lab File ID: J051503A\J07580

Level (low/med): LOW

Date Received:

% Moisture: not dec. 0

Date Analyzed: 05/15/03

GC Column: ZB-624 ID: .25 (mm)

Dilution Factor: 1.0

Soil Extract Volume (μ L)

Soil Aliquot Volume: (μ L)

CONCENTRATION UNITS (ug/L or ug/Kg) ug/L

CAS NO.	COMPOUND		Q
71-55-6	1,1,1-Trichloroethane	1.0	U
79-34-5	1,1,2,2-Tetrachloroethane	1.0	U
79-00-5	1,1,2-Trichloroethane	1.0	U
75-34-3	1,1-Dichloroethane	1.0	U
75-35-4	1,1-Dichloroethene	1.0	U
107-06-2	1,2-Dichloroethane	1.0	U
78-87-5	1,2-Dichloropropane	1.0	U
110-75-8	2-Chloroethyl Vinyl Ether	1.0	U
71-43-2	Benzene	1.0	U
75-27-4	Bromodichloromethane	1.0	U
75-25-2	Bromoform	1.0	U
74-83-9	Bromomethane	1.0	U
56-23-5	Carbon Tetrachloride	1.0	U
108-90-7	Chlorobenzene	1.0	U
75-00-3	Chloroethane	1.0	U
67-66-3	Chloroform	1.0	U
74-87-3	Chloromethane	1.0	U
156-59-2	cis-1,2-Dichloroethene	1.0	U
10061-01-5	cis-1,3-Dichloropropene	1.0	U
124-48-1	Dibromochloromethane	1.0	U
100-41-4	Ethylbenzene	1.0	U
1634-04-4	Methyl tert-butyl ether	1.0	U
75-09-2	Methylene Chloride	1.0	U
127-18-4	Tetrachloroethene	1.0	U
108-88-3	Toluene	1.0	U
156-60-5	trans-1,2-dichloroethene	1.0	U
10061-02-6	trans-1,3-dichloropropene	1.0	U
79-01-6	Trichloroethene	1.0	U
75-01-4	Vinyl Chloride	1.0	U
1330-20-7	Xylenes (total)	3.0	U

5A

VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name : ACCURA ANALYTICAL LAB

Contract : N5079-WR342

Lab Code : ACCURA Case No. :

SAS No. :

Lab File ID :

SDG No. : N/A

Instrument ID : HP-MSJ

BFB Injection Date : 04/29/03

GC Column : ZB-624 ID : .25 (mm)

BFB Injection Time : 12:01

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	8.0 - 40.0% of mass 95	21.3
75	30.0 - 66.0%of mass 95	51.8
95	Base peak, 100% relative abundance	100.0
96	5.0 - 9.0% of mass 95	6.3
173	Less than 2.0% of mass 174	0.0 (0.0)1
174	50.0 - 120.0% of mass 95	61.7
175	4.0 - 9.0% of mass 174	4.3 (6.9)1
176	93.0 - 101.0% of mass 174	60.6 (98.4)1
177	5.0 - 9.0% of mass 176	3.7 (6.0)2

1-Value is % mass 174 2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS AND STANDARDS :

	EPA SAMPLE NO	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
1	VSTD010J07	VSTD010J07	J042903\J07406	04/29/03	12:42
2	VSTD004J07	VSTD004J07	J042903\J07407	04/29/03	13:08
3	VSTD001J07	VSTD001J07	J042903\J07408	04/29/03	13:34
4	VSTD020J07	VSTD020J07	J042903\J07409	04/29/03	14:02
5	VSTD040J07	VSTD040J07	J042903\J07411	04/29/03	14:54
6	VSTD030J07	VSTD030J07	J042903\J07413	04/29/03	16:09
7	VSTD010J08	VSTD010J08	J042903\J07415	04/29/03	17:33

6A

VOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name : ACCURA ANALYTICAL LAB Contract : N5079-WR342

Lab Code : ACCURA Case No. : _____ SAS No. : _____

Instrument ID: HP-MSJ SDG No. : N/A

GC Column: ZB-624 ID: .25 (mm) Calibration Date(s): 04/29/03 04/29/03

Heated Purge (Y/N) : N Calibration Times: 12:42 16:09

LAB FILE ID: RRF1 J042903\J07408 RRF4 J042903\J07407

RRF10 J042903\J07406 RRF20 J042903\J07409 RRF30 J042903\J07413

COMPOUND	RRF1	RRF4	RRF10	RRF20	RRF30	RRF	% RSD
1,1,1-Trichloroethane	1.006	1.021	1.078	1.035	0.998		
1,1,2,2-Tetrachloroethane	0.568	0.482	0.487	0.457	0.474		
1,1,2-Trichloroethane	0.198	0.163	0.163	0.167	0.165		
1,1-Dichloroethane	1.214	1.211	1.283	1.257	1.236		
1,1-Dichloroethene	0.539	0.557	0.583	0.543	0.548		
1,2-Dichloroethane	0.539	0.563	0.582	0.577	0.591		
1,2-Dichloropropane	0.624	0.615	0.639	0.627	0.629		
2-Chloroethyl Vinyl Ether	0.117	0.123	0.135	0.130	0.167		
Benzene	2.451	2.488	2.579	2.467	2.465		
Bromodichloromethane	0.744	0.736	0.759	0.772	0.793		
Bromoform	0.257	0.261	0.283	0.274	0.292		
Bromomethane	0.044	0.032	0.034	0.030	0.034		
Carbon Tetrachloride	0.830	0.862	0.923	0.884	0.864		
Chlorobenzene	1.067	1.018	1.081	1.031	1.006		
Chloroethane	0.192	0.186	0.215	0.204	0.196		
Chloroform	1.171	1.104	1.164	1.123	1.123		
Chloromethane	0.765	0.755	0.798	0.756	0.798		
cis-1,2-Dichloroethene	0.570	0.567	0.593	0.582	0.589		
cis-1,3-Dichloropropene	0.832	0.848	0.888	0.894	0.914		
Dibromochloromethane	0.229	0.226	0.240	0.248	0.246		
Ethylbenzene	2.141	2.172	2.241	2.094	1.937		
Methyl tert-butyl ether	0.771	0.709	0.708	0.696	0.742		
Methylene Chloride	0.959	0.836	0.852	0.832	0.856		
Tetrachloroethene	0.364	0.372	0.398	0.370	0.352		
Toluene	1.778	1.766	1.832	1.735	1.644		

Compounds with required minimum RRF
* Compounds with maximum %RSD Values
All other compounds must meet a minimum RRF of 0.010.

6B

VOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name : ACCURA ANALYTICAL LAB Contract : N5079-WR342

Lab Code : ACCURA Case No. : _____ SAS No. : _____

Instrument ID: HP-MSJ SDG No. : N/A

GC Column: ZB-624 ID: .25 (mm) Calibration Date(s): 04/29/03 04/29/03

Heated Purge (Y/N) : N Calibration Times: 12:42 16:09

LAB FILE ID: RRF1 J042903\J07408 RRF4 J042903\J07407

RRF10 J042903\J07406 RRF20 J042903\J07409 RRF30 J042903\J07413

COMPOUND	RRF1	RRF4	RRF10	RRF20	RRF30	RRF	% RSD
trans-1,2-dichloroethene	0.582	0.602	0.641	0.614	0.612		
trans-1,3-dichloropropene	0.330	0.354	0.371	0.373	0.381		
Trichloroethene	0.768	0.767	0.814	0.775	0.756		
Vinyl Chloride	0.522	0.510	0.547	0.529	0.539		
Xylenes (total)	0.713	0.722	0.735	0.680	0.628		
1,2-Dichloroethane-d4	0.514	0.506	0.444	0.414	0.436		
Bromofluorobenzene	1.280	1.348	1.309	1.088	1.121		
Toluene-D8	1.510	1.608	1.534	1.306	1.299		

Compounds with required minimum RRF
* Compounds with maximum %RSD Values
All other compounds must meet a minimum RRF of 0.010.

6A

VOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name : ACCURA ANALYTICAL LAB Contract : N5079-WR342

Lab Code : ACCURA Case No. : _____ SAS No. : _____ SDG No. : N/A

Instrument ID: HP-MSJ Calibration Date(s): 04/29/03 04/29/03

GC Column: ZB-624 ID: .25 (mm Calibration Times: 12:42 16:09

Heated Purge (Y/N) : N

LAB FILE I RRF40 = J042903\J07411 RRF7 _____

COMPOUND	RRF40	RRF7	RRF	% RSD
1,1,1-Trichloroethane	1.015		1.026	2.79
1,1,2,2-Tetrachloroethane	0.521		0.498	8.08
1,1,2-Trichloroethane	0.177		0.172	8.04
1,1-Dichloroethane	1.282		1.247	2.58
1,1-Dichloroethene	0.543		0.552	2.97
1,2-Dichloroethane	0.623		0.579	4.88
1,2-Dichloropropane	0.656		0.632	2.25
2-Chloroethyl Vinyl Ether			0.134	14.41
Benzene	2.484		2.489	1.85
Bromodichloromethane	0.821		0.771	4.17
Bromoform	0.314		0.280	7.54
Bromomethane	0.035		0.035	14.06
Carbon Tetrachloride	0.884		0.875	3.54
Chlorobenzene	1.016		1.037	2.94
Chloroethane	0.193		0.198	5.26
Chloroform	1.158		1.141	2.40
Chloromethane	0.791		0.777	2.65
cis-1,2-Dichloroethene	0.597		0.583	2.11
cis-1,3-Dichloropropene	0.944		0.887	4.67
Dibromochloromethane	0.260		0.241	5.24
Ethylbenzene	1.911		2.083	6.34
Methyl tert-butyl ether	0.738		0.728	3.86
Methylene Chloride	0.867		0.867	5.39
Tetrachloroethene	0.355		0.368	4.47
Toluene	1.675		1.738	4.00

Compounds with required minimum RRF
* Compounds with maximum %RSD Values
All other compounds must meet a minimum RRF of 0.010.

6B

VOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name : ACCURA ANALYTICAL LAB Contract : N5079-WR342

Lab Code : ACCURA Case No. : _____ SAS No. : _____ SDG No. : N/A

Instrument ID: HP-MSJ Calibration Date(s): 04/29/03 04/29/03

GC Column: ZB-624 ID: .25 (mm Calibration Times: 12:42 16:09

Heated Purge (Y/N) : N

LAB FILE I RRF40 = J042903\J07411 RRF7 _____

COMPOUND			RRF	% RSD
trans-1,2-dichloroethene	0.605		0.609	3.17
trans-1,3-dichloropropene	0.401		0.368	6.60
Trichloroethene	0.777		0.776	2.59
Vinyl Chloride	0.506		0.525	3.07
Xylenes (total)	0.621		0.683	7.16
1,2-Dichloroethane-d4	0.456		0.462	8.64
Bromofluorobenzene	1.167		1.219	8.85
Toluene-D8	1.333		1.432	9.41

Compounds with required minimum RRF
* Compounds with maximum %RSD Values
All other compounds must meet a minimum RRF of 0.010.

5A
VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name : ACCURA ANALYTICAL LAB
Contract : N5079-WR342
Lab Code : ACCURA Case No. :
SAS No. :
Lab File ID :
SDG No. : N/A
Instrument ID : HP-MSJ
BFB Injection Date : 05/12/03
GC Column : ZB-624 ID : .25 (mm)
BFB Injection Time : 12:31

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	8.0 - 40.0% of mass 95	21.3
75	30.0 - 66.0%of mass 95	50.5
95	Base peak, 100% relative abundance	100.0
96	5.0 - 9.0% of mass 95	7.2
173	Less than 2.0% of mass 174	0.0 (0.0)1
174	50.0 - 120.0% of mass 95	64.6
175	4.0 - 9.0% of mass 174	4.7 (7.2)1
176	93.0 - 101.0% of mass 174	61.5 (95.2)1
177	5.0 - 9.0% of mass 176	4.0 (6.5)2

1-Value is % mass 174 2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS AND STANDARDS :

	EPA SAMPLE NO	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
1	VSTD010J16	VSTD010J16	J051203\J07532	05/12/03	12:43
2	15270 BLK	15270 BLK	J051203\J07533	05/12/03	13:20
3	15270 BKS	15270 BKS	J051203\J07534	05/12/03	13:50
4	AIC-MW-05D-0503	4030-001	J051203\J07535	05/12/03	14:22
5	TB00329/TB00330	4030-002	J051203\J07536	05/12/03	14:48
6	FC-MW-22-0503	4030-004	J051203\J07538	05/12/03	16:15
7	FC-MW-05-0503	4030-005	J051203\J07539	05/12/03	16:41
8	FC-MW-22-0503DL	4030-004 DL	J051203\J07540	05/12/03	17:10

7A

VOLATILE CONTINUING CALIBRATION CHECK

Lab Name : ACCURA ANALYTICAL LAB Contract : N5079-WR342

Lab Code : ACCURA Case No. : _____ SAS No. : _____

Instrument ID: HP-MSJ SDG No. : N/A

Lab File I J051203\J07532.D Calibration Date: 05/12/03 Time: 12:43

EPA Sample No. :VSTD010J16 Init. Calib. Date(s): 04/29/03 04/29/03

Heated Purge (Y/N) :_____ Init.Calib. Times: 12:42 16:09

GC Column ZB-624 ID: .25 (mm)

COMPOUND	$\overline{RRF}$	RRF50	MIN RRF	%D	MAX %D
1,1,1-Trichloroethane	1.025	0.938		-8.51	
1,1,2,2-Tetrachloroethane	0.498	0.412		-17.38	
1,1,2-Trichloroethane	0.172	0.142		-17.73	
1,1-Dichloroethane	1.247	1.099		-11.89	
1,1-Dichloroethene	0.552	0.525		-5.01	
1,2-Dichloroethane	0.579	0.506		-12.66	
1,2-Dichloropropane	0.632	0.551		-12.72	
2-Chloroethyl Vinyl Ether	0.134	0.149		10.71	
Benzene	2.489	2.292		-7.90	
Bromodichloromethane	0.771	0.665		-13.77	
Bromoform	0.280	0.235		-16.27	
Bromomethane	0.035	0.030		-13.88	
Carbon Tetrachloride	0.874	0.799		-8.63	
Chlorobenzene	1.037	0.939		-9.47	
Chloroethane	0.198	0.219		10.81	
Chloroform	1.141	0.998		-12.49	
Chloromethane	0.777	0.967		24.35	
cis-1,2-Dichloroethene	0.583	0.524		-10.19	
cis-1,3-Dichloropropene	0.887	0.765		-13.68	
Dibromochloromethane	0.241	0.213		-11.63	
Ethylbenzene	2.083	2.032		-2.41	
Methyl tert-butyl ether	0.727	0.641		-11.86	
Methylene Chloride	0.867	0.748		-13.74	
Tetrachloroethene	0.368	0.343		-6.79	
Toluene	1.738	1.633		-6.09	

Compounds with required minimum RRF
* Compounds with maximum %RSD values

All other Compounds must meet a minimum RRF of 0.01

7B

VOLATILE CONTINUING CALIBRATION CHECK

Lab Name : ACCURA ANALYTICAL LAB Contract : N5079-WR342

Lab Code : ACCURA Case No. : _____ SAS No. : _____

Instrument ID: HP-MSJ SDG No. : N/A

Lab File I J051203\J07532.D Calibration Date: 05/12/03 Time: 12:43

EPA Sample No. :VSTD010J16 Init. Calib. Date(s): 04/29/03 04/29/03

Heated Purge (Y/N) : _____ Init.Calib. Times: 12:42 16:09

GC Column ZB-624 ID: .25 (mm)

COMPOUND	$\overline{RRF}$	RRF50	MIN RRF	%D	MAX %D
trans-1,2-dichloroethene	0.609	0.546		-10.45	
trans-1,3-dichloropropene	0.368	0.327		-11.34	
Trichloroethene	0.776	0.688		-11.37	
Vinyl Chloride	0.525	0.594		13.13	
Xylenes (total)	0.683	0.655		-4.14	
1,2-Dichloroethane-d4	0.462	0.4351		-5.75	
Bromofluorobenzene	1.219	1.1601		-4.80	
Toluene-D8	1.431	1.4445		0.91	

Compounds with required minimum RRF

* Compounds with maximum %RSD values

All other Compounds must meet a minimum RRF of 0.01

5A
VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name : ACCURA ANALYTICAL LAB
Contract : N5079-WR342
Lab Code : ACCURA
Case No. :
SAS No. :
Lab File ID :
SDG No. : N/A
Instrument ID : HP-MSJ
BFB Injection Date : 05/15/03
GC Column : ZB-624 ID : .25 (mm)
BFB Injection Time : 16:51

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	8.0 - 40.0% of mass 95	22.6
75	30.0 - 66.0%of mass 95	53.2
95	Base peak, 100% relative abundance	100.0
96	5.0 - 9.0% of mass 95	6.9
173	Less than 2.0% of mass 174	0.0 (0.0)1
174	50.0 - 120.0% of mass 95	60.9
175	4.0 - 9.0% of mass 174	4.2 (6.9)1
176	93.0 - 101.0% of mass 174	58.5 (96.0)1
177	5.0 - 9.0% of mass 176	3.8 (6.6)2

1-Value is % mass 174 2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS AND STANDARDS :

	EPA SAMPLE NO	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
1	VSTD010J19	VSTD010J19	J051503A\J07579	05/15/03	17:11
2	15325 BLK	15325 BLK	J051503A\J07580	05/15/03	17:43
3	15325 BKS	15325 BKS	J051503A\J07581	05/15/03	18:16
4	FC-MW-06-0503	4030-003	J051503A\J07583	05/15/03	19:07
5	FC-MW-06-0503MS	4030-003 MS	J051503A\J07584	05/15/03	19:34
6	FC-MW-06-0503MSD	4030-003 MSD	J051503A\J07585	05/15/03	19:58
7	COLDWAT12112MS	4091-002 MS	J051503A\J07593	05/15/03	23:22
8	COLDWAT12112MSD	4091-002 MSD	J051503A\J07594	05/15/03	23:48

7A

VOLATILE CONTINUING CALIBRATION CHECK

Lab Name : ACCURA ANALYTICAL LAB Contract : N5079-WR342

Lab Code : ACCURA Case No. : _____ SAS No. : _____

Instrument ID: HP-MSJ SDG No. : N/A

Lab File I J051503A\J07579.D Calibration Date: 05/15/03 Time: 17:11

EPA Sample No. : VSTD010J19 Init. Calib. Date(s): 04/29/03 04/29/03

Heated Purge (Y/N) : _____ Init.Calib. Times: 12:42 16:09

GC Column ZB-624 ID: .25 (mm)

COMPOUND	$\overline{RRF}$	RRF50	MIN RRF	%D	MAX %D
1,1,1-Trichloroethane	1.025	0.977		-4.73	
1,1,2,2-Tetrachloroethane	0.498	0.403		-19.17	
1,1,2-Trichloroethane	0.172	0.139		-19.07	
1,1-Dichloroethane	1.247	1.160		-6.96	
1,1-Dichloroethene	0.552	0.547		-0.97	
1,2-Dichloroethane	0.579	0.489		-15.57	
1,2-Dichloropropane	0.632	0.548		-13.23	
2-Chloroethyl Vinyl Ether	0.134	0.137		2.00	
Benzene	2.489	2.347		-5.72	
Bromodichloromethane	0.771	0.662		-14.06	
Bromoform	0.280	0.236		-15.81	
Bromomethane	0.035	0.034		-3.51	
Carbon Tetrachloride	0.874	0.832		-4.88	
Chlorobenzene	1.037	0.968		-6.67	
Chloroethane	0.198	0.240		21.43	
Chloroform	1.141	1.005		-11.91	
Chloromethane	0.777	0.950		22.28	
cis-1,2-Dichloroethene	0.583	0.537		-7.84	
cis-1,3-Dichloropropene	0.887	0.768		-13.35	
Dibromochloromethane	0.241	0.206		-14.62	
Ethylbenzene	2.083	2.114		1.49	
Methyl tert-butyl ether	0.727	0.615		-15.47	
Methylene Chloride	0.867	0.772		-10.94	
Tetrachloroethene	0.368	0.362		-1.66	
Toluene	1.738	1.719		-1.10	

Compounds with required minimum RRF

* Compounds with maximum %RSD values

All other Compounds must meet a minimum RRF of 0.01

7B

VOLATILE CONTINUING CALIBRATION CHECK

Lab Name : ACCURA ANALYTICAL LAB Contract : N5079-WR342

Lab Code : ACCURA Case No. : _____ SAS No. : _____

Instrument ID: HP-MSJ SDG No. : N/A

Lab File I J051503A\J07579.D Calibration Date: 05/15/03 Time: 17:11

EPA Sample No. :VSTD010J19 Init. Calib. Date(s): 04/29/03 04/29/03

Heated Purge (Y/N) :_____ Init.Calib. Times: 12:42 16:09

GC Column ZB-624 ID: .25 (mm)

COMPOUND	$\overline{RRF}$	RRF50	MIN RRF	%D	MAX %D
trans-1,2-dichloroethene	0.609	0.594		-2.51	
trans-1,3-dichloropropene	0.368	0.327		-11.37	
Trichloroethene	0.776	0.697		-10.18	
Vinyl Chloride	0.525	0.624		18.69	
Xylenes (total)	0.683	0.674		-1.33	
1,2-Dichloroethane-d4	0.462	0.4389		-4.93	
Bromofluorobenzene	1.219	1.2357		1.40	
Toluene-D8	1.431	1.5167		5.95	

Compounds with required minimum RRF

* Compounds with maximum %RSD values

All other Compounds must meet a minimum RRF of 0.01

2A
WATER VOLATILE SYSTEM MONITORING COMPOUND RECOVERY

Lab Name: ACCURA ANALYTICAL LAB Contract: N5079-WR342

Lab Code: ACCURA Case No. : _____ SAS No. : _____

SDG No. : N/A

	EPA SAMPLE NO.	SMC1	SMC2	SMC3	OTHER	
		(DCE) #	(BFB) #	(TOL) #		TOT OUT
1	15270 BLK	95	112	114		0
2	15270 BKS	94	102	103		0
3	AIC-MW-05D-0503	138	100	97		0
4	TB00329/TB00330	97	95	96		0
5	FC-MW-22-0503	132	134*	97		1
6	FC-MW-05-0503	83	104	111		0
7	FC-MW-22-0503DL	99	97	100		0
8	15325 BLK	97	104	106		0
9	15325 BKS	89	93	99		0
10	FC-MW-06-0503	94	101	107		0
11	FC-MW-06-0503MS	96	99	105		0
12	FC-MW-06-0503MSD	92	96	99		0
13	COLDWAT12112MS	103	105	107		0
14	COLDWAT12112MSD	100	104	104		0

		QC LIMITS
SMC1	(DCE) = 1,2-Dichloroethane-d4	(58 - 146)
SMC2	(BFB) = 4-Bromofluorobenzene	(74 - 124)
SMC3	(TOL) = Toluene-D8	(81 - 118)
Other		(-)

Column to be used to flag recovery values

* Values outside of contract required QC limits

3A

WATER VOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: ACCURA ANALYTICAL LAB Contract : N5079-WR342

Lab Code : ACCURA CASE No. : _____ SAS No. : _____

Matrix Spike - EPA Sample N COLDWAT12112 SDG No. : N/A

COMPOUND	SPIKE ADDED ug/L	SAMPLE CONCENTRATION ug/L	MS CONCENTRATION ug/L	MS % REC #	QC LIMITS REC.
1,1-Dichloroethene	10	0	9.7	97	71-129
Benzene	10	0	9.5	95	67-134
Chlorobenzene	10	0	9.4	94	77-118
Toluene	10	0	9.8	98	66-128
Trichloroethene	10	4.4	12	76	69-126

COMPOUND	SPIKE ADDED ug/L	MSD CONCENTRATION ug/L	MSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC
1,1-Dichloroethene	10	9.5	95	2	20	71-129
Benzene	10	9.2	92	3	20	67-134
Chlorobenzene	10	8.9	89	5	20	77-118
Toluene	10	9.2	92	6	20	66-128
Trichloroethene	10	11	66 *	14	20	69-126

Column to be used to flag recovery and RPD Values with and asterisk.

* Values outside of QC limits

RPD 0 Out of 5 Outside Limi

Spike Recovery : 1 Out of 10 Outside limit

Comments : _____

3A

WATER VOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: ACCURA ANALYTICAL LAB Contract : N5079-WR342

Lab Code : ACCURA CASE No. : _____ SAS No. : _____

Matrix Spike - EPA Sample N FC-MW-06-0503 SDG No. : N/A

COMPOUND	SPIKE ADDED ug/L	SAMPLE CONCENTRATION ug/L	MS CONCENTRATION ug/L	MS % REC #	QC LIMITS REC.
1,1,1-Trichloroethane	10	0	9.0	90	70-130
1,1,2,2-Tetrachloroethane	10	0	8.0	80	70-130
1,1,2-Trichloroethane	10	0	8.3	83	70-130
1,1-Dichloroethane	10	0	8.9	89	70-130
1,1-Dichloroethene	10	0	9.2	92	71-129
1,2-Dichloroethane	10	0	8.5	85	70-130
1,2-Dichloropropane	10	0	8.4	84	70-130
2-Chloroethyl Vinyl Ether	10	0	1.9	19 *	70-130
Benzene	10	0	9.2	92	67-134
Bromodichloromethane	10	0	8.6	86	70-130
Bromoform	10	0	7.9	79	70-130
Bromomethane	10	0	8.8	88	70-130
Carbon Tetrachloride	10	0	9.2	92	70-130
Chlorobenzene	10	0	9.1	91	77-118
Chloroethane	10	0	10	100	70-130
Chloroform	10	0	8.7	87	70-130
Chloromethane	10	0	11	110	70-130
cis-1,2-Dichloroethene	10	0	8.7	87	70-130
cis-1,3-Dichloropropene	10	0	8.4	84	70-130
Dibromochloromethane	10	0	8.4	84	70-130
Ethylbenzene	10	0	10	100	70-130
Methyl tert-butyl ether	10	0	8.4	84	70-130
Methylene Chloride	10	0	8.5	85	70-130
Tetrachloroethene	10	0	9.2	92	70-130
Toluene	10	0	9.6	96	66-128
trans-1,2-dichloroethene	10	0	8.8	88	70-130
trans-1,3-dichloropropene	10	0	8.8	88	70-130
Trichloroethene	10	0	8.7	87	69-126
Vinyl Chloride	10	0	11	110	70-130

Comments : _____

3A

WATER VOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: ACCURA ANALYTICAL LAB Contract : N5079-WR342

Lab Code : ACCURA CASE No. : _____ SAS No. : _____

Matrix Spike - EPA Sample N FC-MW-06-0503 SDG No. : N/A

COMPOUND	SPIKE ADDED ug/L	SAMPLE CONCENTRATION ug/L	MS CONCENTRATION ug/L	MS % REC #	QC LIMITS REC.
Xylenes (total)	30	0	29	97	70-130

COMPOUND	SPIKE ADDED ug/L	MSD CONCENTRATION ug/L	MSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC
1,1,1-Trichloroethane	10	9.0	90	0	20	70-130
1,1,2,2-Tetrachloroethane	10	7.8	78	3	20	70-130
1,1,2-Trichloroethane	10	8.1	81	2	20	70-130
1,1-Dichloroethane	10	8.9	89	0	20	70-130
1,1-Dichloroethene	10	9.3	93	1	20	71-129
1,2-Dichloroethane	10	8.0	80	6	20	70-130
1,2-Dichloropropane	10	8.5	85	1	20	70-130
2-Chloroethyl Vinyl Ether	10	1.3	13 *	38 *	20	70-130
Benzene	10	9.2	92	0	20	67-134
Bromodichloromethane	10	8.6	86	0	20	70-130
Bromoform	10	7.6	76	4	20	70-130
Bromomethane	10	10	100	13	20	70-130
Carbon Tetrachloride	10	9.2	92	0	20	70-130
Chlorobenzene	10	8.9	89	2	20	77-118
Chloroethane	10	11	110	10	20	70-130
Chloroform	10	8.7	87	0	20	70-130
Chloromethane	10	11	110	0	20	70-130
cis-1,2-Dichloroethene	10	8.8	88	1	20	70-130
cis-1,3-Dichloropropene	10	8.3	83	1	20	70-130
Dibromochloromethane	10	8.3	83	1	20	70-130
Ethylbenzene	10	9.8	98	2	20	70-130
Methyl tert-butyl ether	10	8.3	83	1	20	70-130
Methylene Chloride	10	8.5	85	0	20	70-130
Tetrachloroethene	10	9.0	90	2	20	70-130
Toluene	10	9.4	94	2	20	66-128

Comments : _____

3A

WATER VOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: ACCURA ANALYTICAL LAB Contract : N5079-WR342

Lab Code : ACCURA CASE No. : _____ SAS No. : _____

Matrix Spike - EPA Sample N FC-MW-06-0503 SDG No. : N/A

COMPOUND	SPIKE ADDED	MSD CONCENTRATION	MSD % REC #	% RPD #	QC LIMITS	
	ug/L	ug/L			RPD	REC
trans-1,2-dichloroethene	10	9.0	90	2	20	70-130
trans-1,3-dichloropropene	10	8.3	83	6	20	70-130
Trichloroethene	10	8.9	89	2	20	69-126
Vinyl Chloride	10	11	110	0	20	70-130
Xylenes (total)	30	28	93	4	20	70-130

Column to be used to flag recovery and RPD Values with and asterisk.

* Values outside of QC limits

RPD 1 Out of 30 Outside Limi

Spike Recovery : 2 Out of 60 Outside limit

Comments : _____

3A

WATER VOLATILE BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY

Lab Name: ACCURA ANALYTICAL LAB Contract : N5079-WR342

Lab Code : ACCURA Case No. : _____ SAS No. : _____ SDG No. : N/A

Blank Spike - EPA Sample No. 15270 BKS

COMPOUND	SPIKE ADDED (ug/L)	BLANK CONCENTRATION (ug/L)	BKS CONCENTRATION (ug/L)	BKS % REC #	QC LIMITS REC.
1,1-Dichloroethene	10	0	9.8	98	77-129
Benzene	10	0	9.1	91	73-124
Chlorobenzene	10	0	9.0	90	79-123
Toluene	10	0	9.6	96	71-124
Trichloroethene	10	0	8.1	81	73-125

Column to be used to flag recovery and RPD values with and asterisk

* Values outside of QC limits

RPD 0 out of 5 outside limit

Spike Recovery 0 out of 10 outside limit

Comments : _____

4B

SEMIVOLATILE METHOD BLANK SUMMARY

EPA SAMPLE NO.

15307 BLK

Lab Name : ACCURA ANALYTICAL LAB Contract : N5079-WR342

Lab Code : ACCURA Case No. : SAS No. : SDG No. : N/A

Lab File ID : 1B051503\B42156.D Lab Sample ID : 15307 BLK

Instrument ID : HP-MSB Date Extracted : 05/13/03

Matrix : (soil/ water) WATER Date Analyzed : 05/15/03

Level : (low/med) LOW Time Analyzed : 16:10

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD :

	EPA SAMPLE NO..	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
1	15307 BKS	15307 BKS	1B051503\B42153.D	05/15/03
2	FC-MW-06-0503 MS	4030-003 MS	1B051503\B42154.D	05/15/03
3	FC-MW-06-0503 MSD	4030-003 MSD	1B051503\B42155.D	05/15/03
4	FC-MW-06-0503	4030-003	1B051503\B42157.D	05/15/03
5	FC-MW-22-0503	4030-004	1B051503\B42158.D	05/15/03
6	FC-MW-05-0503	4030-005	1B051503\B42159.D	05/15/03

COMMENTS:

1D

SEMIVOLATILE ORGANICS ANALYSES DATA SHEET

EPA SAMPLE NO.

15307 BLK

Lab Name : ACCURA ANALYTICAL LAB

Contract: N5079-WR342

Lab Code : ACCURA

Case No.:

SAS No.:

SDG No.: N/A

Matrix : (soil/water) WATER

Lab Sample Id: 15307 BLK

Sample wt/vol: 1000 (g/ml): ML

Lab File ID: 1B051503\B42156

Level : (low/med) LOW

Date Received:

% Moisture: 0 Decanted: (Y/N) N

Date Extracted: 05/13/03

Concentrated Extract Volume: 1000 (µ L)

Date Analyzed: 05/15/03

Injection Volume: 1.0 (µ L)

Dilution Factor: 1.0

GPC Cleanup (Y/N): N pH: N/A

Extraction : (Type) SW3520C

CONCENTRATION UNITS:

CAS NO.	COMPOUND	(ug/L or ug/Kg) ug/L	Q
90-12-0	1-Methylnaphthalene	1.0	U
91-57-6	2-Methylnaphthalene	1.0	U
83-32-9	Acenaphthene	1.0	U
208-96-8	Acenaphthylene	1.0	U
120-12-7	Anthracene	1.0	U
56-55-3	Benzo(a)anthracene	1.0	U
50-32-8	Benzo(a)pyrene	1.0	U
205-99-2	Benzo(b)fluoranthene	1.0	U
191-24-2	Benzo(g,h,i)perylene	1.0	U
207-08-9	Benzo(k)fluoranthene	1.0	U
218-01-9	Chrysene	1.0	U
53-70-3	Dibenz(a,h)Anthracene	1.0	U
206-44-0	Fluoranthene	1.0	U
86-73-7	Fluorene	1.0	U
193-39-5	Indeno(1,2,3-c,d)Pyrene	1.0	U
91-20-3	Naphthalene	1.0	U
85-01-8	Phenanthrene	1.0	U
129-00-0	Pyrene	1.0	U

5B

SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name : ACCURA ANALYTICAL LAB Contract : N5079-WR342

Lab Code : ACCURA Case No. : SAS No. : SDG No. : N/A

Lab File ID : DFTPP Injection Date : 05/12/03

Instrument ID : HP-MSB DFTPP Injection Time : 15:13

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE	
51	30.0 - 60.0% of mass 198	46.3	
68	Less than 2.0% of mass 69	0.0	(0.0)1
69	Mass 69 relative abundance	59.7	
70	Less than 2.0% of mass 69	0.0	(0.0)1
127	40.0 - 60.0% of mass 198	49.2	
197	Less than 1.0% of mass 198	0.0	
198	Base Peak, 100% relative abundance	100.0	
199	5.0 to 9.0% of mass 198	6.5	
275	10.0 - 30.0% of mass 198	24.7	
365	Greater than 1.0% of mass 198	2.2	
441	Present, but less than mass 443	8.4	
442	40.0 - 110.0% of mass 198	57.8	
443	17.0 - 23.0% of mass 442	11.0	(18.9)2

1-Value is % mass 69 2-Value is % mass 442

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS AND STANDARDS :

	EPA SAMPLE NO	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
1	SSTD050B52	SSTD050B52	1B051203\B42113	05/12/03	15:23
2	SSTD001B52	SSTD001B52	1B051203\B42114	05/12/03	15:44
3	SSTD010B52	SSTD010B52	1B051203\B42115	05/12/03	16:03
4	SSTD020B52	SSTD020B52	1B051203\B42116	05/12/03	16:24
5	SSTD080B52	SSTD080B52	1B051203\B42117	05/12/03	16:43
6	SSTD120B52	SSTD120B52	1B051203\B42118	05/12/03	17:04
7	SSTD160B52	SSTD160B52	1B051203\B42119	05/12/03	17:24

6C

SEMIVOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name : ACCURA ANALYTICAL LAB Contract : N5079-WR342

Lab Code : ACCURA Case No. : _____ SAS No. : _____ SDG No. : N/A

Instrument ID: HP-MSB Calibration Date(s): 05/12/03 05/12/03

Calibration Times: 15:23 17:24

LAB FILE ID: RRF1 = 1B051203\B42114 RRF10 = 1B051203\B42115

RRF20 = 1B051203\B42116 RRF50 = 1B051203\B42113 RRF80 = 1B051203\B42117

COMPOUND	RRF1	RRF10	RRF20	RRF50	RRF80	$\overline{RRF}$	% RSD
1-Methylnaphthalene	0.628	0.600	0.618	0.609	0.592	0.610	
2-Methylnaphthalene	0.512	0.518	0.539	0.543	0.528	0.528	
Acenaphthene *	1.157	1.193	1.201	1.188	1.145	1.177	
Acenaphthylene	1.848	1.950	1.974	2.014	1.918	1.941	
Anthracene	1.162	1.200	1.193	1.200	1.191	1.189	
Benzo(a)anthracene	1.077	0.991	1.020	1.097	1.092	1.056	
Benzo(a)pyrene *	1.363	1.313	1.362	1.492	1.520	1.410	
Benzo(b)fluoranthene	1.541	1.487	1.565	1.760	1.615	1.594	
Benzo(g,h,i)perylene	1.126	1.139	1.155	1.219	1.237	1.175	
Benzo(k)fluoranthene	1.507	1.376	1.382	1.460	1.631	1.471	
Chrysene	1.117	1.027	1.005	1.017	1.024	1.038	
Dibenz(a,h)Anthracene	1.016	1.124	1.146	1.255	1.299	1.168	
Fluoranthene *	1.076	1.096	1.125	1.148	1.160	1.121	
Fluorene	1.279	1.297	1.310	1.326	1.278	1.298	
Indeno(1,2,3-c,d)Pyrene	1.294	1.364	1.383	1.488	1.537	1.413	
Naphthalene	1.023	1.027	1.032	1.035	1.010	1.026	
Phenanthrene	1.103	1.101	1.108	1.086	1.067	1.093	
Pyrene	1.250	1.277	1.267	1.295	1.261	1.270	
o-Terphenyl	0.514	0.532	0.541	0.555	0.581	0.545	

Compounds with required minimum RRF
* Compounds with maximum %RSD Values
All other compounds must meet a minimum RRF of

6C

SEMIVOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name : ACCURA ANALYTICAL LAB Contract : N5079-WR342

Lab Code : ACCURA Case No. : _____ SAS No. : _____ SDG No. : N/A

Instrument ID: HP-MSB Calibration Date(s): 05/12/03 05/12/03

Calibration Times: 15:23 16:03

LAB FILE ID: RRF120 = 1B051203\B42118 RRF160 = 1B051203\B42119

COMPOUND	RRF120	RRF160	$\overline{RRF}$	% RSD
1-Methylnaphthalene	0.571	0.558	0.597	4.22
2-Methylnaphthalene	0.515	0.515	0.524	2.37
Acenaphthene *	1.137	1.079	1.157	3.67
Acenaphthylene	1.897	1.857	1.923	3.17
Anthracene	1.154	1.141	1.177	2.08
Benzo(a)anthracene	1.095	1.080	1.065	3.92
Benzo(a)pyrene *	1.507	1.493	1.436	6.00
Benzo(b)fluoranthene	1.739	1.756	1.638	6.92
Benzo(g,h,i)perylene	1.238	1.240	1.193	4.28
Benzo(k)fluoranthene	1.477	1.451	1.469	5.85
Chrysene	1.036	1.001	1.032	3.81
Dibenz(a,h)Anthracene	1.313	1.316	1.210	9.58
Fluoranthene *	1.139	1.138	1.126	2.65
Fluorene	1.261	1.247	1.285	2.15
Indeno(1,2,3-c,d)Pyrene	1.552	1.558	1.454	7.29
Naphthalene	0.974	0.952	1.008	3.20
Phenanthrene	1.069	1.021	1.079	2.81
Pyrene	1.225	1.208	1.255	2.40
o-Terphenyl	0.568	0.514	0.544	4.75

Compounds with required minimum RRF
* Compounds with maximum %RSD Values
All other compounds must meet a minimum RRF of 0.010.

5B

SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name : ACCURA ANALYTICAL LAB Contract : N5079-WR342

Lab Code : ACCURA Case No. : SAS No. : SDG No. : N/A

Lab File ID : DFTPP Injection Date : 05/15/03

Instrument ID : HP-MSB DFTPP Injection Time : 14:32

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE	
51	30.0 - 60.0% of mass 198	41.5	
68	Less than 2.0% of mass 69	0.0	(0.0)1
69	Mass 69 relative abundance	52.6	
70	Less than 2.0% of mass 69	0.0	(0.0)1
127	40.0 - 60.0% of mass 198	47.0	
197	Less than 1.0% of mass 198	0.0	
198	Base Peak, 100% relative abundance	100.0	
199	5.0 to 9.0% of mass 198	6.5	
275	10.0 - 30.0% of mass 198	24.8	
365	Greater than 1.0% of mass 198	2.6	
441	Present, but less than mass 443	9.6	
442	40.0 - 110.0% of mass 198	61.6	
443	17.0 - 23.0% of mass 442	11.5	(18.7)2

1-Value is % mass 69 2-Value is % mass 442

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS AND STANDARDS :

	EPA SAMPLE NO	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
1	SSTD050B58	SSTD050B58	1B051503\B42152	05/15/03	14:43
2	15307 BKS	15307 BKS	1B051503\B42153	05/15/03	15:04
3	FC-MW-06-0503 MS	4030-003 MS	1B051503\B42154	05/15/03	15:26
4	FC-MW-06-0503 MSD	4030-003 MSD	1B051503\B42155	05/15/03	15:48
5	15307 BLK	15307 BLK	1B051503\B42156	05/15/03	16:10
6	FC-MW-06-0503	4030-003	1B051503\B42157	05/15/03	16:32
7	FC-MW-22-0503	4030-004	1B051503\B42158	05/15/03	16:53
8	FC-MW-05-0503	4030-005	1B051503\B42159	05/15/03	17:15

7C

SEMIVOLATILE CONTINUING CALIBRATION CHECK

Lab Name : ACCURA ANALYTICAL LAB Contract : N5079-WR342

Lab Code : ACCURA Case No. : _____ SAS No. : _____ SDG No. : N/A

Instrument ID: HP-MSB Calibration Date: 05/15/03 Time: 14:43

Lab File ID 1B051503\B42152.D Init. Calib. Date(s): 05/12/03 05/12/03

EPA Sample No. : SSTD050B58 Init.Calib. Times: 15:23 16:43

GC Column: ZB-5 ID: .25 (mm)

COMPOUND		$\overline{RRF}$	RRF50	MIN RRF	%D	MAX %D
1-Methylnaphthalene		0.597	0.625		4.73	
2-Methylnaphthalene		0.524	0.565		7.72	
Acenaphthene	*	1.157	1.189		2.78	20.0
Acenaphthylene		1.923	1.976		2.76	
Anthracene		1.177	1.209		2.74	
Benzo(a)anthracene		1.065	1.082		1.62	
Benzo(a)pyrene	*	1.436	1.517		5.69	20.0
Benzo(b)fluoranthene		1.638	1.700		3.81	
Benzo(g,h,i)perylene		1.193	1.088		-8.83	
Benzo(k)fluoranthene		1.469	1.651		12.38	
Chrysene		1.032	1.006		-2.52	
Dibenz(a,h)Anthracene		1.210	1.177		-2.73	
Fluoranthene	*	1.126	1.199		6.48	20.0
Fluorene		1.285	1.348		4.87	
Indeno(1,2,3-c,d)Pyrene		1.454	1.380		-5.09	
Naphthalene		1.008	1.033		2.52	
Phenanthrene		1.079	1.078		-0.11	
Pyrene		1.255	1.214		-3.21	
o-Terphenyl		0.544	0.573		5.50	

Compounds with required minimum RRF
* Compounds with maximum %RSD Values
All other compounds must meet a minimum RRF of 0.01

2C
WATER SEMIVOLATILE SURROGATE RECOVERY

Lab Name: ACCURA ANALYTICAL LAB Contract: N5079-WR342

Lab Code: ACCURA Case No.: _____ SAS NO.: _____ SDG NO.: N/A

	EPA SAMPLE NO.	S1 (OTPH)	S2 ()	S3 ()	S4 ()	S5 ()	S6 ()	S7 ()	S8 ()	TOT OUT
1	15307 BKS	92								0
2	FC-MW-06-0503 MS	86								0
3	FC-MW-06-0503 MSD	72								0
4	15307 BLK	91								0
5	FC-MW-06-0503	92								0
6	FC-MW-22-0503	75								0
7	FC-MW-05-0503	89								0

		QC LIMITS	
S1	(OTPH) = o-Terphenyl	(18 - 136)	
S2		(-)	
S3		(-)	
S4		(-)	
S5		(-)	
S6		(-)	
S7		(-)	(advisory)
S8		(-)	(advisory)

Column to be used to flag recovery values

* Values outside of contract required QC limits

D Surrogate diluted out

3C

WATER SEMIVOLATILE BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY

Lab Name: ACCURA ANALYTICAL LAB Contract : N5079-WR342

Lab Code : ACCURA Case No. : _____ SAS No. : _____ SDG No. : N/A

Blank Spike - EPA Sample No. : 15307 BKS

COMPOUND	SPIKE ADDED (ug/L)	BLANK CONCENTRATION (ug/L)	BKS CONCENTRATION (ug/L)	BKS % REC #	QC LIMITS REC.
1-Methylnaphthalene	50	0	38	76	35-96
2-Methylnaphthalene	50	0	36	72	37-113
Acenaphthene	50	0	39	78	47-119
Acenaphthylene	50	0	38	76	60-110
Anthracene	50	0	41	82	68-109
Benzo(a)anthracene	50	0	43	86	51-124
Benzo(a)pyrene	50	0	40	80	41-135
Benzo(b)fluoranthene	50	0	42	84	25-167
Benzo(g,h,i)perylene	50	0	38	76	34-135
Benzo(k)fluoranthene	50	0	46	92	43-131
Chrysene	50	0	42	84	52-126
Dibenz(a,h)Anthracene	50	0	40	80	38-134
Fluoranthene	50	0	44	88	66-122
Fluorene	50	0	40	80	56-119
Indeno(1,2,3-c,d)Pyrene	50	0	40	80	38-130
Naphthalene	50	0	34	68	12-146
Phenanthrene	50	0	42	84	74-104
Pyrene	50	0	43	86	49-127

Column to be used to flag recovery and RPD values with and asterisk

* Values outside of QC limits

RPD 0 out of 18 outside limit

Spike Recovery 0 out of 36 outside limit

Comments : _____

3C

WATER SEMIVOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: ACCURA ANALYTICAL LAB Contract : N5079-WR342

Lab Code : ACCURA CASE No. : _____ SAS No. : _____ SDG No. : N/A

Matrix Spike - EPA Sample No. FC-MW-06-0503 MS

COMPOUND	SPIKE ADDED ug/L	SAMPLE CONCENTRATION ug/L	MS CONCENTRATION ug/L	MS % REC #	QC LIMITS REC.
1-Methylnaphthalene	50	0	39	78	35-95
2-Methylnaphthalene	50	0	37	74	41-106
Acenaphthene	50	0	40	80	46-118
Acenaphthylene	50	0	39	78	61-109
Anthracene	50	0	39	78	69-106
Benzo(a)anthracene	50	0	37	74	52-121
Benzo(a)pyrene	50	0	29	58	33-136
Benzo(b)fluoranthene	50	0	32	64	23-166
Benzo(g,h,i)perylene	50	0	23	46	35-129
Benzo(k)fluoranthene	50	0	30	60	42-127
Chrysene	50	0	36	72	52-123
Dibenz(a,h)Anthracene	50	0	22	44	17-164
Fluoranthene	50	0	43	86	66-122
Fluorene	50	0	41	82	56-116
Indeno(1,2,3-c,d)Pyrene	50	0	23	46	27-150
Naphthalene	50	0	35	70	13-138
Phenanthrene	50	0	44	88	74-103
Pyrene	50	0	42	84	49-126

COMPOUND	SPIKE ADDED ug/L	MSD CONCENTRATION ug/L	MSD % REC #	% RPD #	QC LIMITS	
					RPD	REC
1-Methylnaphthalene	50	34	68	14	20	35-95
2-Methylnaphthalene	50	32	64	14	20	41-106
Acenaphthene	50	36	72	11	20	46-118
Acenaphthylene	50	35	70	11	20	61-109
Anthracene	50	40	80	3	20	69-106
Benzo(a)anthracene	50	32	64	14	20	52-121
Benzo(a)pyrene	50	19	38	42 *	20	33-136
Benzo(b)fluoranthene	50	21	42	42 *	20	23-166
Benzo(g,h,i)perylene	50	13	26	56 *	20	35-129
Benzo(k)fluoranthene	50	21	42	35 *	20	42-127
Chrysene	50	28	56	25 *	20	52-123
Dibenz(a,h)Anthracene	50	12	24	59 *	20	17-164
Fluoranthene	50	40	80	7	20	66-122
Fluorene	50	37	74	10	20	56-116
Indeno(1,2,3-c,d)Pyrene	50	13	26	56 *	20	27-150

3C

WATER SEMIVOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: ACCURA ANALYTICAL LAB Contract : N5079-WR342

Lab Code : ACCURA CASE No. : _____ SAS No. : _____ SDG No. : N/A

Matrix Spike - EPA Sample No. FC-MW-06-0503 MS

COMPOUND	SPIKE ADDED ug/L	MSD CONCENTRATION ug/L	MSD % REC #	% RPD #	QC LIMITS	
					RPD	REC
Naphthalene	50	30	60	15	20	13-138
Phenanthrene	50	40	80	10	20	74-103
Pyrene	50	42	84	0	20	49-126

Column to be used to flag recovery and RPD Values with and asterisk.
* Values outside of QC limits

RPD 7 Out of 18 outside Limit

Spike Recovery : 2 Out of 36 outside limit

Comments : _____

4C

SEMIVOLATILE METHOD BLANK SUMMAR'

EPA SAMPLE NO.

15289 BLK

Lab Name : ACCURA ANALYTICAL LAB Contract : N5079-WR342

Lab Code : ACCURA Case No. : _____ SAS No. : _____ SDG No. : _____

Lab File ID : 05-13-03\E02914.D Lab Sample ID : 15289 BLK

Matrix : (soil/ water) WATER Extraction : (Type) 05/13/03

Sulfur Cleanup: (Y/N N Date Extracted : 05/13/03

Date Analyzed (1) : 05/13/03 Date Analyzed (2) : 05/13/03

Time Analyzed (1) 18:34 Time Analyzed (2) : 18:34

Instrument ID (1) : HP-GCE Instrument ID (2) : HP-GCE

GC Column (1) HP-5 ID : .53 (mm GC Column (2) : DB-1701 ID : .53 (mm

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD

	EPA SAMPLE NO..	LAB SAMPLE ID	DATE ANALYZED 1	DATE ANALYZED 2
1	15289 BKS	15289 BKS	05/13/03	05/13/03
2	FC-MW-06-0503	4030-003	05/13/03	05/13/03
3	FC-MW-06-0503 MS	4030-003 MS	05/13/03	05/13/03
4	FC-MW-06-0503 MSD	4030-003 MSD	05/13/03	05/13/03
5	FC-MW-22-0503	4030-004	05/13/03	05/13/03
6	FC-MW-05-0503	4030-005	05/13/03	05/13/03

Comments _____

1 E
SEMIVOLATILE ORGANICS ANALYSES DATA SHEET

EPA SAMPLE NO.
15289 BLK

Lab Name : ACCURA ANALYTICAL LAB Contract: N5079-WR342

Lab Code : ACCURA Case No.: _____ SAS No.: BLK SDG No.: N/A

Matrix : WATER Lab Sample Id: 15289 BLK

Sample wt/vol: 35 (g/ml): ML Lab File ID: 05-13-03\E02914

% Moisture: 0 Decanted: (Y/N) _____ Date Received: _____

Extraction : (Type) EXT SW8011 Date Extracted: 05/13/03

Concentrated Extract Volume: 2000 (µL) Date Analyzed: 05/13/03

Injection Volume: 2 (µL) Dilution Factor: 1.0

GPC Cleanup (Y/N): _____ pH: _____ Sulfur Cleanup (Y/N): _____

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/L

106-93-4	1,2-Dibromoethane (EDB)	0.020	U

1 E
SEMIVOLATILE ORGANICS ANALYSES DATA SHEET

EPA SAMPLE NO.
EIBLK-E71

Lab Name : ACCURA ANALYTICAL LAB
Contract: N5079-WR342
Lab Code : ACCURA
Case No.: _____
SAS No.: PIBLK
SDG No.: N/A
Matrix : WATER
Lab Sample Id: EIBLK-E71
Sample wt/vol: 1 (g/ml): ML
Lab File ID: 05-13-03\E02929
% Moisture: 0
Decanted: (Y/N) _____
Date Received: _____
Extraction : (Type) EXT SW8011
Date Extracted: 05/13/03
Concentrated Extract Volume: 1000 (µ L)
Date Analyzed: 05/13/03
Injection Volume: 2 (µ L)
Dilution Factor: 1.0
GPC Cleanup (Y/N): _____ pH: _____
Sulfur Cleanup (Y/N): _____

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/L

106-93-4	1,2-Dibromoethane (EDB)	0.020	U

1 E
SEMIVOLATILE ORGANICS ANALYSES DATA SHEET

EPA SAMPLE NO.
EIBLK-E70

Lab Name : ACCURA ANALYTICAL LAB Contract: N5079-WR342

Lab Code : ACCURA Case No.: _____ SAS No.: PIBLK SDG No.: N/A

Matrix : WATER Lab Sample Id: EIBLK-E70

Sample wt/vol: 1 (g/ml): ML Lab File ID: 05-13-03\E02911

% Moisture: 0 Decanted: (Y/N) _____ Date Received: _____

Extraction : (Type) EXT SW8011 Date Extracted: 05/13/03

Concentrated Extract Volume: 1000 (µL) Date Analyzed: 05/13/03

Injection Volume: 2 (µL) Dilution Factor: 1.0

GPC Cleanup (Y/N): _____ pH: _____ Sulfur Cleanup (Y/N): _____

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/L

106-93-4	1,2-Dibromoethane (EDB)	0.020	U

1 E
SEMIVOLATILE ORGANICS ANALYSES DATA SHEET

EPA SAMPLE NO.
EIBLK-E69

Lab Name : ACCURA ANALYTICAL LAB
Contract: N5079-WR342
Lab Code : ACCURA
Case No.: _____
SAS No.: PIBLK
SDG No.: N/A
Matrix : WATER
Lab Sample Id: EIBLK-E69
Sample wt/vol: 1 (g/ml): ML
Lab File ID: 05-13-03\E02903
% Moisture: 0
Decanted: (Y/N) _____
Date Received: _____
Extraction : (Type) EXT SW8011
Date Extracted: 05/13/03
Concentrated Extract Volume: 1000 (µL)
Date Analyzed: 05/13/03
Injection Volume: 2 (µL)
Dilution Factor: 1.0
GPC Cleanup (Y/N): _____
pH: _____
Sulfur Cleanup (Y/N): _____

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/L

106-93-4	1,2-Dibromoethane (EDB)	0.020	U

6C

SEMIVOLATILES ORGANICS INITIAL CALIBRATION DATA

Lab Name : ACCURA ANALYTICAL LAB Contract : N5079-WR342

Lab Code : ACCURA Case No. : _____ SAS No. : _____ SDG No. : N/A

Instrument ID: HP-GCE Calibration Date(s): 05/13/03 05/13/03

GC Column : DB-1701 ID : .53 (mm) Calibration Times: 16:26 16:26

LAB FILE ID: CCF1 = 05-13-03\E02910.D CCF2 = 05-13-03\E02909.D

CCF3 = 05-13-03\E02908.D CCF4 = 05-13-03\E02907.D CCF5 = 05-13-03\E02906.D

COMPOUND	CCF1	CCF2	CCF3	CCF4	CCF5	CCF	% RSD
1,2-Dibromoethane (EDB)	1234744.730	1283142.741	1398669.829	1340918.089	1425612.417		

* Compounds with required minimum RRF and maximum %RSD Values
All other compounds must meet a minimum RRF of 0.010.

6D

SEMIVOLATILES ORGANICS INITIAL CALIBRATION DATA

Lab Name : ACCURA ANALYTICAL LAB Contract : N5079-WR342

Lab Code : ACCURA Case No. : _____ SAS No. : _____ SDG No. : N/A

Instrument ID: HP-GCE Calibration Date(s): 05/13/03 05/13/03

GC Column : DB-1701 ID : .53 (mm) Calibration Times: 16:26 16:26

LAB FILE ID: CCF6 = 05-13-03\E02905.D CCF7 = 05-13-03\E02904.D

COMPOUND	CCF6	CCF7	$\overline{CCF}$	% RSD
1,2-Dibromoethane (EDB)	1282962.734	1281862.924	1321130.495	5.28

* Compounds with required minimum RRF and maximum %RSD Val
All other compounds must meet a minimum RRF of 0.010.

6C

SEMIVOLATILES ORGANICS INITIAL CALIBRATION DATA

Lab Name : ACCURA ANALYTICAL LAB Contract : N5079-WR342

Lab Code : ACCURA Case No. : _____ SAS No. : _____ SDG No. : N/A

Instrument ID: HP-GCE Calibration Date(s): 05/13/03 05/13/03

GC Column : HP-5 ID : .53 (mm) Calibration Times: 16:47 16:47

LAB FILE ID: CCF6 = 05-13-03\E02905.D CCF7 = 05-13-03\E02904.D

COMPOUND	CCF6	CCF7	$\overline{CCF}$	% RSD
1,2-Dibromoethane (EDB)	1290808.513	1263939.005	1385847.280	6.89

* Compounds with required minimum RRF and maximum %RSD Valı
All other compounds must meet a minimum RRF of 0.010.

6D

SEMIVOLATILES ORGANICS INITIAL CALIBRATION DATA

Lab Name : ACCURA ANALYTICAL LAB Contract : N5079-WR342

Lab Code : ACCURA Case No. : _____ SAS No. : _____ SDG No. : N/A

Instrument ID: HP-GCE Calibration Date(s): 05/13/03 05/13/03

GC Column : HP-5 ID : .53 (mm) Calibration Times: 16:47 16:47

LAB FILE ID: CCF1 = 05-13-03\E02910.D CCF2 = 05-13-03\E02909.D

CCF3 = 05-13-03\E02908.D CCF4 = 05-13-03\E02907.D CCF5 = 05-13-03\E02906.D

COMPOUND	CCF1	CCF2	CCF3	CCF4	CCF5	CCF	% RSD
1,2-Dibromoethane (EDB)	1409598.358	1333437.292	1535365.900	1450269.046	1417512.847		

* Compounds with required minimum RRF and maximum %RSD Values
All other compounds must meet a minimum RRF of 0.010.

7C

SEMIVOLATILES CONTINUING CALIBRATION CHECK

Lab Name : ACCURA ANALYTICAL LAB Contract : N5079-WR342

Lab Code : ACCURA Case No. : _____ SAS No. : _____

Instrument ID: HP-GCE SDG No. : N/A

Lab File ID 05-13-03\E02912.D Calibration Date: 05/13/03 Time: 17:51

EPA Sample No. : EDBSTD-REF-E Init. Calib. Date(s): 05/13/03 05/13/03

GC Column: DB-1701 ID: 0.53 (mm) Init.Calib. Times: 15:43 17:09

COMPOUND	$\overline{CCF}$	CCF	MIN CCF	%D	MAX %D
1,2-Dibromoethane (EDB)	1321130.495	1163862.003		-11.90	

All other Compounds must meet a minimum RRF of 0.010

7D

SEMIVOLATILES CONTINUING CALIBRATION CHECK

Lab Name : ACCURA ANALYTICAL LAB Contract : N5079-WR342

Lab Code : ACCURA Case No. : _____ SAS No. : _____

Instrument ID: HP-GCE SDG No. : N/A

Lab File ID 05-13-03\E02912.D Calibration Date: 05/13/03 Time: 17:51

EPA Sample No. : EDBSTD-REF-E Init. Calib. Date(s): 05/13/03 05/13/03

GC Column: HP-5 ID: 0.53 (mm) Init.Calib. Times: 15:43 17:09

COMPOUND	$\overline{CCF}$	CCF	MIN CCF	%D	MAX %D
1,2-Dibromoethane (EDB)	1385847.280	1317368.181		-4.94	

All other Compounds must meet a minimum RRF of 0.010

7C

SEMIVOLATILES CONTINUING CALIBRATION CHECK

Lab Name : ACCURA ANALYTICAL LAB Contract : N5079-WR342

Lab Code : ACCURA Case No. : _____ SAS No. : _____

Instrument ID: HP-GCE SDG No. : N/A

Lab File ID 05-13-03\E02913.D Calibration Date: 05/13/03 Time: 18:13

EPA Sample No. : EDBSTD-05-CC Init. Calib. Date(s): 05/13/03 05/13/03

GC Column: DB-1701 ID: 0.53 (mm) Init.Calib. Times: 15:43 17:09

COMPOUND	$\overline{CCF}$	CCF	MIN CCF	%D	MAX %D
1,2-Dibromoethane (EDB)	1321130.495	1431334.417		8.34	

All other Compounds must meet a minimum RRF of 0.010

7D

SEMIVOLATILES CONTINUING CALIBRATION CHECK

Lab Name : ACCURA ANALYTICAL LAB Contract : N5079-WR342

Lab Code : ACCURA Case No. : _____ SAS No. : _____

Instrument ID: HP-GCE SDG No. : N/A

Lab File ID 05-13-03\E02913.D Calibration Date: 05/13/03 Time: 18:13

EPA Sample No. : EDBSTD-05-CC Init. Calib. Date(s): 05/13/03 05/13/03

GC Column: HP-5 ID: 0.53 (mm) Init.Calib. Times: 15:43 17:09

COMPOUND	$\overline{CCF}$	CCF	MIN CCF	%D	MAX %D
1,2-Dibromoethane (EDB)	1385847.280	1550035.853		11.85	

All other Compounds must meet a minimum RRF of 0.010

7C

SEMIVOLATILES CONTINUING CALIBRATION CHECK

Lab Name : ACCURA ANALYTICAL LAB Contract : N5079-WR342

Lab Code : ACCURA Case No. : _____ SAS No. : _____

Instrument ID: HP-GCE SDG No. : N/A

Lab File ID 05-13-03\E02930.D Calibration Date: 05/14/03 Time: 00:17

EPA Sample No. : EDBSTD-05-CC Init. Calib. Date(s): 05/13/03 05/13/03

GC Column: HP-5 ID: 0.53 (mm) Init.Calib. Times: 15:43 17:09

COMPOUND	$\overline{CCF}$	CCF	MIN CCF	%D	MAX %D
1,2-Dibromoethane (EDB)	1385847.280	1671713.224		20.63	

All other Compounds must meet a minimum RRF of 0.010

7D

SEMIVOLATILES CONTINUING CALIBRATION CHECK

Lab Name : ACCURA ANALYTICAL LAB Contract : N5079-WR342

Lab Code : ACCURA Case No. : _____ SAS No. : _____

Instrument ID: HP-GCE SDG No. : N/A

Lab File ID 05-13-03\E02930.D Calibration Date: 05/14/03 Time: 00:17

EPA Sample No. : EDBSTD-05-CC Init. Calib. Date(s): 05/13/03 05/13/03

GC Column: DB-1701 ID: 0.53 (mm) Init.Calib. Times: 15:43 17:09

COMPOUND	$\overline{CCF}$	CCF	MIN CCF	%D	MAX %D
1,2-Dibromoethane (EDB)	1321130.495	1484850.025		12.39	

All other Compounds must meet a minimum RRF of 0.010

3E

WATER SEMIVOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: ACCURA ANALYTICAL LAB Contract : N5079-WR342

Lab Code : ACCURA CASE No. : _____ SAS No. : _____ SDG No. : N/A

Matrix Spike - EPA Sample No. FC-MW-06-0503 MS

COMPOUND	SPIKE ADDED ug/L	SAMPLE CONCENTRATION ug/L	MS CONCENTRATION ug/L	MS % REC #	QC LIMITS REC.
1,2-Dibromoethane (EDB)	0.10	0	0.10	100	60-140

COMPOUND	SPIKE ADDED ug/L	MSD CONCENTRATION ug/L	MSD % REC #	% RPD #	QC LIMITS	
					RPD	REC
1,2-Dibromoethane (EDB)	0.20	0.21	105	5	20	60-140

Column to be used to flag recovery and RPD Values with and asterisk.

* Values outside of QC limits

RPD 0 Out of 1 outside Limits

Spike Recovery : 0 Out of 2 outside limits

Comments : _____

3E

WATER PESTICIDE BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY

Lab Name: ACCURA ANALYTICAL LAB Contract : N5079-WR342

Lab Code : ACCURA Case No. : _____ SAS No. : _____ SDG No. : N/A

Blank Spike - EPA Sample No. : 15289 BKS

COMPOUND	SPIKE ADDED	BLANK CONCENTRATION	BKS CONCENTRATION	BKS % REC #	QC LIMITS REC.
	(ug/L)	(ug/L)	(ug/L)		
1,2-Dibromoethane (EDB)	0.20	0	0.21	105	60-140

Column to be used to flag recovery and RPD values with and asterisk

* Values outside of QC limits

RPD : 0 out of 1 outside limits

Spike Recovery : 0 out of 2 outside limits

Comments : _____

1D

SEMIVOLATILE ORGANICS ANALYSES DATA SHEET

EPA SAMPLE NO.

15287 BLK

Lab Name : ACCURA ANALYTICAL LAB

Contract: N5079-WR342

Lab Code : ACCURA

Case No.:

SAS No.:

SDG No.: N/A

Matrix : (soil/water) WATER

Lab Sample Id: 15287 BLK

Sample wt/vol: 1000 (g/ml): ML

Lab File ID: 1O051203\O002168

Level : (low/med) LOW

Date Received:

% Moisture: 0 Decanted: (Y/N) N

Date Extracted: 05/12/03

Concentrated Extract Volume: 2000 (µL)

Date Analyzed: 05/13/03

Injection Volume: 1.0 (µL)

Dilution Factor: 1.0

GPC Cleanup (Y/N): N pH: N/A

Extraction : (Type) SW3520C

CONCENTRATION UNITS:

CAS NO.	COMPOUND	(ug/L or ug/Kg) mg/L	Q
	Petroleum Range Organics	1.2	J

8D
SEMIVOLATILE INITIAL ANALYTICAL SEQUENCE

Lab Name : ACCURA ANALYTICAL LAB Contract : N5079-WR342

Lab Code : ACCURA Case No. : _____ SAS No. : _____

GC Column: _____ ID: _____ (mm) SDG No. : N/A

Instrument ID: HP-GCO Init. Calib. Date(s): 05/08/03 05/08/03

THE ANALYTICAL SEQUENCE OF PERFORMANCE EVALUATION MIXTURES, BLANKS, SAMPLES, AND STANDARDS IS GIVEN BELOW

MEAN SURROGATE RT FROM INITIAL CALIBRATION
TCX : _____ DCB : _____

EPA SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED	TIME ANALYZED	TCX RT #	DCB RT #
FLPRO0850	FLPRO0850	05/08/03	13:57		
FLPRO1700	FLPRO1700	05/08/03	14:46		
FLPRO2550	FLPRO2550	05/08/03	15:36		
FLPRO4250	FLPRO4250	05/08/03	16:26		
FLPRO5950	FLPRO5950	05/08/03	17:16		
FLPRO8500	FLPRO8500	05/08/03	18:05		
15190 BLK	15190 BLK	05/08/03	20:34		
15190 BKS	15190 BKS	05/08/03	21:24		
ZZZZZ	ZZZZZ	05/08/03	22:14		
ZZZZZ	ZZZZZ	05/08/03	23:03		
ZZZZZ	ZZZZZ	05/08/03	23:53		
ZZZZZ	ZZZZZ	05/09/03	00:42		
ZZZZZ	ZZZZZ	05/09/03	01:32		
ZZZZZ	ZZZZZ	05/09/03	02:22		
ZZZZZ	ZZZZZ	05/09/03	03:11		

QC LIMITS
(± 0.05 MINUTES)
(± 0.10 MINUTES)

TCX = Tetrachloro-m-xylene
DCB = Decachlorobiphenyl

Column used to flag retention time values with and asterisk.
* Value outside of QC limits.

6C

SEMIVOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name : ACCURA ANALYTICAL LAB Contract : N5079-WR342

Lab Code : ACCURA Case No. : _____ SAS No. : _____ SDG No. : N/A

Instrument ID: HP-GCO Calibration Date(s): 05/08/03 05/08/03

GC Column : DB ID : _____ (mm) Calibration Times: 13:57 13:57

LAB FILE ID: CCF1 = 1O050803\O002121.D CCF2 = 1O050803\O002122.D

CCF3 = 1O050803\O002123.D CCF4 = 1O050803\O002124.D CCF5 = 1O050803\O002125.D

COMPOUND	CCF1	CCF2	CCF3	CCF4	CCF5	CCF	% RSD
Petroleum Range Organics	8568.564	6050.746	5707.135	5484.709	5694.301		
o-Terphenyl	10664.216	9699.841	9752.611	9845.458	10898.201	10172.065	5.55
C(39)	392.640	386.574	376.844	401.438	462.935	404.086	8.44

* Compounds with required minimum RRF and maximum %RSD Values
All other compounds must meet a minimum RRF of 0.010.

FL_PRO

6C

SEMIVOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name : ACCURA ANALYTICAL LAB Contract : N5079-WR342

Lab Code : ACCURA Case No. : _____ SAS No. : _____ SDG No. : N/A

Instrument ID: HP-GCO Calibration Date(s): 05/08/03 05/08/03

GC Column : DB ID : (mm) Calibration Times: 13:57 13:57

LAB FILE ID: CCF6 = 1O050803\O002126.D CCF7 = _____

COMPOUND	CCF6	CCF7	$\overline{CCF}$	% RSD
Petroleum Range Organics	5977.036		6247.082	18.50
C(39)				
o-Terphenyl				

* Compounds with required minimum RRF and maximum %RSD Values
All other compounds must meet a minimum RRF of 0.010.

8D
SEMIVOLATILE INITIAL ANALYTICAL SEQUENCE

Lab Name : ACCURA ANALYTICAL LAB Contract : N5079-WR342

Lab Code : ACCURA Case No. : _____ SAS No. : _____

GC Column: _____ ID: _____ (mm) SDG No. : N/A

Instrument ID: HP-GCO Init. Calib. Date(s): 05/08/03 05/08/03

THE ANALYTICAL SEQUENCE OF PERFORMANCE EVALUATION MIXTURES, BLANKS, SAMPLES, AND STANDARDS IS GIVEN BELOW

MEAN SURROGATE RT FROM INITIAL CALIBRATION
TCX : _____ DCB : _____

EPA SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED	TIME ANALYZED	TCX RT #	DCB RT #
FLPRO595002	FLPRO595002	05/13/03	16:06		
15287 BLK	15287 BLK	05/13/03	16:55		
15287 BKS	15287 BKS	05/13/03	17:45		
TPB0QGLMW0601 MS	4054-001 MS	05/13/03	18:34		
TPB0QGLMW0601 MSD	4054-001 MSD	05/13/03	19:24		
FC-MW-06-0503	4030-003	05/13/03	20:13		
FC-MW-22-0503	4030-004	05/13/03	21:03		
FC-MW-05-0503	4030-005	05/13/03	21:52		
ZZZZZ	ZZZZZ	05/13/03	22:42		
ZZZZZ	ZZZZZ	05/13/03	23:31		
ZZZZZ	ZZZZZ	05/14/03	00:21		
FLPRO425003	FLPRO425003	05/14/03	01:10		
ZZZZZ	ZZZZZ	05/14/03	02:00		
ZZZZZ	ZZZZZ	05/14/03	02:49		
ZZZZZ	ZZZZZ	05/14/03	03:39		
ZZZZZ	ZZZZZ	05/14/03	04:28		
ZZZZZ	ZZZZZ	05/14/03	05:18		
ZZZZZ	ZZZZZ	05/14/03	06:08		
ZZZZZ	ZZZZZ	05/14/03	06:57		
FLPRO425004	FLPRO425004	05/14/03	09:26		

QC LIMITS
(± 0.05 MINUTES)
(± 0.10 MINUTES)

TCX = Tetrachloro-m-xylene
DCB = Decachlorobiphenyl

Column used to flag retention time values with and asterisk.
* Value outside of QC limits.

7C

SEMIVOLATILE CONTINUING CALIBRATION CHECK

Lab Name : ACCURA ANALYTICAL LAB Contract : N5079-WR342

Lab Code : ACCURA Case No. : _____ SAS No. : _____

Instrument ID: HP-GCO SDG No. : N/A

Lab File ID: 1O051203\O002167.D Calibration Date: 05/13/03 Time: 16:06

EPA Sample No. : FLPRO595002 Init. Calib. Date(s): 05/08/03 05/08/03

GC Column: _____ ID: _____ (mm) Init.Calib. Times: 13:57 17:16

COMPOUND	$\overline{CCF}$	CCF	MIN CCF	%D	MAX %D
Petroleum Range Organics	6247.082	5759.815		-7.80	25.0
C(39)	404.086	424.886		5.15	
o-Terphenyl	10172.065	11535.864		13.41	

All other Compounds must meet a minimum RRF of 0.010

7C

SEMIVOLATILE CONTINUING CALIBRATION CHECK

Lab Name : ACCURA ANALYTICAL LAB Contract : N5079-WR342

Lab Code : ACCURA Case No. : _____ SAS No. : _____

Instrument ID: HP-GCO SDG No. : N/A

Lab File ID: 1O051203\O002178.D Calibration Date: 05/14/03 Time: 01:10

EPA Sample No. : FLPRO425003 Init. Calib. Date(s): 05/08/03 05/08/03

GC Column: _____ ID: _____ (mm) Init.Calib. Times: 13:57 17:16

COMPOUND	$\overline{CCF}$	CCF	MIN CCF	%D	MAX %D
Petroleum Range Organics	6247.082	5805.172		-7.07	25.0
C(39)	404.086	431.251		6.72	
o-Terphenyl	10172.065	10557.174		3.79	

All other Compounds must meet a minimum RRF of 0.010

7D

SEMIVOLATILE CONTINUING CALIBRATION CHECK

Lab Name : ACCURA ANALYTICAL LAB Contract : N5079-WR342

Lab Code : ACCURA Case No. : _____ SAS No. : _____

Instrument ID: HP-GCO SDG No. : N/A

Lab File ID: 1O051203\O002188.D Calibration Date: 05/14/03 Time: 09:26

EPA Sample No. : FLPRO425004 Init. Calib. Date(s): 05/08/03 05/08/03

GC Column: _____ ID: _____ (mm) Init.Calib. Times: 13:57 17:16

COMPOUND	$\overline{CCF}$	CCF	MIN CCF	%D	MAX %D
Petroleum Range Organics	6247.082	5847.928		-6.39	25.0
C(39)	404.086	438.951		8.63	
o-Terphenyl	10172.065	10695.673		5.15	

All other Compounds must meet a minimum RRF of 0.010

2C
WATER SEMIVOLATILE SURROGATE RECOVERY

Lab Name: ACCURA ANALYTICAL LAB Contract: N5079-WR342

Lab Code: ACCURA Case No.: _____ SAS NO.: _____ SDG NO.: N/A

	EPA SAMPLE NO.	S1 (OTPH)	S2 (C39)	S3 ()	S4 ()	S5 ()	S6 ()	S7 ()	S8 ()	TOT OUT
1	15287 BLK	57*	58							1
2	15287 BKS	71*	43							1
3	TPB0QGLMW0601 MS	67*	25*							2
4	TPB0QGLMW0601 MSD	68*	57							1
5	FC-MW-06-0503	74*	63							1
6	FC-MW-22-0503	87	104							0
7	FC-MW-05-0503	75*	67							1

		QC LIMITS	
S1	(OTPH) = o-Terphenyl	(82 - 142)	
S2	(C39) = C39	(42 - 193)	
S3		(-)	
S4		(-)	
S5		(-)	
S6		(-)	
S7		(-)	(advisory)
S8		(-)	(advisory)

Column to be used to flag recovery values

* Values outside of contract required QC limits

D Surrogate diluted out

3C
WATER SEMIVOLATILE BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY

Lab Name: ACCURA ANALYTICAL LAB Contract : N5079-WR342

Lab Code : ACCURA Case No. : _____ SAS No. : _____ SDG No. : N/A

Blank Spike - EPA Sample No. : 15287 BKS

COMPOUND	SPIKE ADDED (mg/L)	BLANK CONCENTRATION (mg/L)	BKS CONCENTRATION (mg/L)	BKS % REC #	QC LIMITS REC.
Petroleum Range Organics	4.3	1.2	3.4	79	55-118

Column to be used to flag recovery and RPD values with and asterisk

* Values outside of QC limits

RPD : 0 out of 0 outside limits

Spike Recovery : 0 out of 0 outside limits

Comments : _____

3C

WATER SEMIVOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: ACCURA ANALYTICAL LAB Contract : N5079-WR342

Lab Code : ACCURA CASE No. : _____ SAS No. : _____ SDG No. : N/A

Matrix Spike - EPA Sample No. : TPB0QGLMW0601

COMPOUND	SPIKE ADDED mg/L	SAMPLE CONCENTRATION mg/L	MS CONCENTRATION mg/L	MS % REC #	QC LIMITS REC.
Petroleum Range Organics	8.5	2.6	8.1	65	41-101

COMPOUND	SPIKE ADDED mg/L	MSD CONCENTRATION mg/L	MSD % REC #	% RPD #	QC LIMITS	
					RPD	REC
Petroleum Range Organics	8.5	8.4	68	5	20	41-101

Column to be used to flag recovery and RPD Values with and asterisk.

* Values outside of QC limits

RPD : 0 Out of 1 outside Limits

Spike Recovery : 0 Out of 2 outside limits

Comments : _____

USEPA - CLP

3-IN
BLANKS

Lab Name: ACCURA ANALYTICAL LAB. Contract: N5079-WR342

Lab Code: ACCURA Case No.: _____ NRAS No.: _____ SDG No.: N/A

Preparation Blank Matrix (soil/water): W

Preparation Blank Concentration Units (ug/L or mg/kg UG/L

Analyte	Initial Calib. Blank (ug/L)		Continuing Calibration Blank (ug/L)						Preparation Blank		
		C	1	C	2	C	3	C		C	M
Lead	10.0	U	10.0	U	10.0	U			10.000	U	P

USEPA - CLP

9 - IN
METHOD DETECTION LIMITS (ANNUALLY)

Lab Name ACCURA ANALYTICAL LAB. Contract: N5079-WR342

Lab Code: ACCURA Case No.: _____ NRAS No.: _____ SDG No.: N/A

Instrument Type: CLP_ILM05.0 Instrument ID TETRACEB Date: 09/13/2002

Preparation Method: CLP_DIGESTION

Concentration Units (ug/L or mg/kg): UG/L

Analyte	Wavelength /Mass	CRQL	MDL
Lead	220.4	4.3	3.4

Comments: _____

USEPA - CLP

12-IN
PREPARATION LOG

Lab Name: ACCURA ANALYTICAL LAB. Contract: N5079-WR342

Lab Code: ACCURA Case No.: _____ NRAS No.: _____ SDG No.: N/A

Preparation Method: CLP

EPA Sample No.	Preparation Date	Weight (gram)	Volume (mL)
15350 BKS	05/14/2003		50
15350 BLK	05/14/2003		50
15350 BSD	05/14/2003		50
TPB0QGLMW1201	05/14/2003		50
TPB0QGLMW1201	05/14/2003		50
TPB0QGLMW1201	05/14/2003		50
FC-MW-05-0503	05/14/2003		50
FC-MW-06-0503	05/14/2003		50
FC-MW-22-0503	05/14/2003		50
TPB0QGLMW1201	05/14/2003		50

USEPA - CLP

13-IN
ANALYSIS RUN LOG

Lab Name: ACCURA ANALYTICAL LAB. Contract: N5079-WR342

Lab Code: ACCURA Case No. _____ NRAS No.: _____ SDG No.: N/A

Instrument ID : TETRACEB Analysis Method: CLP_ILM05.0

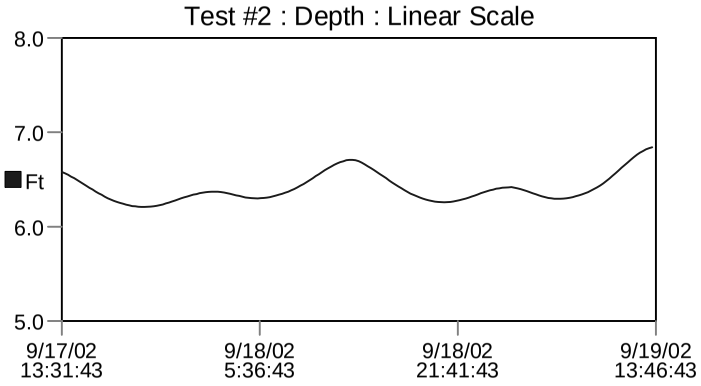
Start Date: 05/16/2003 End Date: 05/16/2003

Sample No.	D/F	Time	Analytes																								
			AL	SB	AS	BA	BE	CD	CA	CR	CO	CU	FE	PB	MG	MN	HG	NI	K	SE	AG	NA	TL	V	ZN	CN	
STDBLK	1.00	10:06																									
STD2	1.00	10:11																									
STD4	1.00	10:20																									
STD3	1.00	10:24																									
CRI-01	1.00	10:37												X													
ICV-01	1.00	10:42												X													
ICB-01	1.00	10:46												X													
ISA-01	1.00	10:51												X													
ISB-01	1.00	10:56												X													
15350 BLK	1.00	11:05												X													
15350 BKS	1.00	11:09												X													
15350 BSD	1.00	11:14												X													
FC-MW-06-0503	1.00	11:21												X													
FC-MW-22-0503	1.00	11:26												X													
FC-MW-05-0503	1.00	11:30												X													
zzzzz	1.00	11:35																									
zzzzz	1.00	11:40																									
zzzzz	1.00	11:44																									
zzzzz	1.00	11:49																									
CCV-01-01	1.00	11:56												X													
CCB-01-01	1.00	12:01												X													
TPB0QGLMW1201	1.00	12:05												X													
TPB0QGLMW1201 MD	1.00	12:10												X													
TPB0QGLMW1201 MS	1.00	12:14												X													
TPB0QGLMW1201 MSD	1.00	12:19												X													
TPB0QGLMW1201 SD	1.00	12:24												X													
TPB0QGLMW1201 PDS	1.00	12:28												X													
CCV-01-02	1.00	12:35												X													
CCB-01-02	1.00	12:40												X													

APPENDIX E

TIDAL STUDY DATA

In-Situ Inc.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8.0
7.0
Ft
6.0
5.0
9/17/02
13:31:43
9/18/02
5:36:43
9/18/02
21:41:43
9/19/02
13:46:43

In-Situ Inc. MiniTroll Pro

Report generated: 9/23/2002 10:44:11
Report from file: ...\SN08979 2002-09-17 133143 Test #2.bin
Win-Situ Version 4.2

Serial number: 8979
Firmware Version 3.04
Unit name:
miniTROL
L

Test name: Test #2

Test defined on: 9/17/2002 13:20:18
Test started on: 9/17/2002 13:31:43
Test stopped on: 9/19/2002 13:50:32
Test extracted on: N/A N/A

Data gathered using Linear testing
Time between data points: 900.0 Seconds.
Number of data samples: 194

TOTAL DATA SAMPLES 194

Channel number [2]
Measurement type: Pressure
Channel name: depths
Sensor Range: 30 PSI.
Specific gravity: 1

Date	Time	ET (sec)	Chan[2] Feet H2O
9/17/2002	13:31:43	0	6.601
9/17/2002	13:46:43	900	6.586
9/17/2002	14:01:43	1800	6.571
9/17/2002	14:16:43	2700	6.55
9/17/2002	14:31:43	3600	6.534
9/17/2002	14:46:43	4500	6.514
9/17/2002	15:01:43	5400	6.494
9/17/2002	15:16:43	6300	6.472
9/17/2002	15:31:43	7200	6.451
9/17/2002	15:46:43	8100	6.43
9/17/2002	16:01:43	9000	6.412
9/17/2002	16:16:43	9900	6.39
9/17/2002	16:31:43	10800	6.371
9/17/2002	16:46:43	11700	6.355
9/17/2002	17:01:43	12600	6.335

9/17/2002	17:16:43	13500	6.318
9/17/2002	17:31:43	14400	6.304
9/17/2002	17:46:43	15300	6.29
9/17/2002	18:01:43	16200	6.278
9/17/2002	18:16:43	17100	6.268
9/17/2002	18:31:43	18000	6.259
9/17/2002	18:46:43	18900	6.249
9/17/2002	19:01:43	19800	6.242
9/17/2002	19:16:43	20700	6.234
9/17/2002	19:31:43	21600	6.232
9/17/2002	19:46:43	22500	6.227
9/17/2002	20:01:43	23400	6.226
9/17/2002	20:16:43	24300	6.224
9/17/2002	20:31:43	25200	6.227
9/17/2002	20:46:43	26100	6.228
9/17/2002	21:01:43	27000	6.233
9/17/2002	21:16:43	27900	6.237
9/17/2002	21:31:43	28800	6.244
9/17/2002	21:46:43	29700	6.251
9/17/2002	22:01:43	30600	6.262
9/17/2002	22:16:43	31500	6.272
9/17/2002	22:31:43	32400	6.283
9/17/2002	22:46:43	33300	6.294
9/17/2002	23:01:43	34200	6.306
9/17/2002	23:16:43	35100	6.318
9/17/2002	23:31:43	36000	6.329
9/17/2002	23:46:43	36900	6.336
9/18/2002	0:01:43	37800	6.347
9/18/2002	0:16:43	38700	6.357
9/18/2002	0:31:43	39600	6.363
9/18/2002	0:46:43	40500	6.373
9/18/2002	1:01:43	41400	6.379
9/18/2002	1:16:43	42300	6.383
9/18/2002	1:31:43	43200	6.387
9/18/2002	1:46:43	44100	6.389
9/18/2002	2:01:43	45000	6.389
9/18/2002	2:16:43	45900	6.389
9/18/2002	2:31:43	46800	6.385
9/18/2002	2:46:43	47700	6.38
9/18/2002	3:01:43	48600	6.373
9/18/2002	3:16:43	49500	6.366
9/18/2002	3:31:43	50400	6.358
9/18/2002	3:46:43	51300	6.349
9/18/2002	4:01:43	52200	6.343
9/18/2002	4:16:43	53100	6.334
9/18/2002	4:31:43	54000	6.326
9/18/2002	4:46:43	54900	6.322
9/18/2002	5:01:43	55800	6.319
9/18/2002	5:16:43	56700	6.317
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9/18/2002	5:46:43	58500	6.319

9/18/2002	6:01:43	59400	6.322
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9/18/2002	9:31:43	72000	6.492
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9/18/2002	10:01:43	73800	6.533
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9/18/2002	11:16:43	78300	6.639
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9/18/2002	12:46:43	83700	6.727
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9/18/2002	14:31:43	90000	6.662
9/18/2002	14:46:43	90900	6.643
9/18/2002	15:01:43	91800	6.622
9/18/2002	15:16:43	92700	6.6
9/18/2002	15:31:43	93600	6.578
9/18/2002	15:46:43	94500	6.556
9/18/2002	16:01:43	95400	6.535
9/18/2002	16:16:43	96300	6.509
9/18/2002	16:31:43	97200	6.487
9/18/2002	16:46:43	98100	6.465
9/18/2002	17:01:43	99000	6.445
9/18/2002	17:16:43	99900	6.426
9/18/2002	17:31:43	100800	6.406
9/18/2002	17:46:43	101700	6.386
9/18/2002	18:01:43	102600	6.368
9/18/2002	18:16:43	103500	6.354
9/18/2002	18:31:43	104400	6.34

9/18/2002	18:46:43	105300	6.327
9/18/2002	19:01:43	106200	6.315
9/18/2002	19:16:43	107100	6.304
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9/18/2002	20:01:43	109800	6.282
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9/18/2002	20:46:43	112500	6.275
9/18/2002	21:01:43	113400	6.276
9/18/2002	21:16:43	114300	6.279
9/18/2002	21:31:43	115200	6.284
9/18/2002	21:46:43	116100	6.291
9/18/2002	22:01:43	117000	6.297
9/18/2002	22:16:43	117900	6.306
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9/18/2002	23:16:43	121500	6.347
9/18/2002	23:31:43	122400	6.359
9/18/2002	23:46:43	123300	6.373
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9/19/2002	0:16:43	125100	6.393
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9/19/2002	6:46:43	148500	6.318
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9/19/2002	8:01:43	153000	6.358
9/19/2002	8:16:43	153900	6.372
9/19/2002	8:31:43	154800	6.383
9/19/2002	8:46:43	155700	6.401
9/19/2002	9:01:43	156600	6.417
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9/19/2002	9:46:43	159300	6.478
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9/19/2002	10:31:43	162000	6.559
9/19/2002	10:46:43	162900	6.586
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9/19/2002	11:16:43	164700	6.647
9/19/2002	11:31:43	165600	6.674
9/19/2002	11:46:43	166500	6.703
9/19/2002	12:01:43	167400	6.733
9/19/2002	12:16:43	168300	6.76
9/19/2002	12:31:43	169200	6.786
9/19/2002	12:46:43	170100	6.807
9/19/2002	13:01:43	171000	6.825
9/19/2002	13:16:43	171900	6.844
9/19/2002	13:31:43	172800	6.856
9/19/2002	13:46:43	173700	6.866

APPENDIX F

SLUG TESTS

Contained in Appendix D of the Contamination Assessment Report, SWMU 9, Jet Engine Test Cell, Building A969, prepared by ABB Environmental Services Inc., June 1994.

Aquifer Parameter Calculations

Hydraulic gradient

Water table elevations recorded on October 20, 1993, were used to calculate hydraulic gradients at the site. The hydraulic gradient was calculated by subtracting the difference in groundwater elevation (in feet) between two points, along a line oriented perpendicular to equipotential lines (see Figure 5-1). The elevation difference was divided by the horizontal distance between the two points to obtain a resulting gradient in feet per foot (ft/ft). Traverses were made perpendicular to equipotential contour lines from monitoring wells MW-10 to MW-17, from monitoring wells MW-9 to MW-17, and from monitoring wells MW-10 to MW-13 (see Figure 5-1), to calculate an average hydraulic gradient. For each traverse, the hydraulic gradient was calculated as follows:

$$i = (h_1 - h_2) / d \qquad (1)$$

where

i = hydraulic gradient (ft/ft);
h_1 = water table elevation, upgradient (feet);
h_2 = water table elevation, downgradient (feet); and
d = horizontal distance (feet) between h_1 and h_2 along a flow line.

Hydraulic gradients calculated in this manner vary from 1.4×10^{-3} ft/ft to 1.8×10^{-3} ft/ft. The average calculated hydraulic gradient at the site is 1.6×10^{-3} ft/ft.

Hydraulic conductivity

Hydraulic conductivity (K) from slug test data was calculated following the methods of Bouwer and Rice (1976) and Bouwer (1989) for partially penetrating wells screened in unconfined aquifers. The following well information was used to calculate the hydraulic conductivity:

- radius of well casing (r_c),
- r_w = radius of borehole (r_c plus radius of the sand pack surrounding the well screen),
- length of screened interval below the water table (L_e),
- effective well radius (r_e),
- depth of well below the water table (L_w),
- depth to confining unit or bottom of aquifer below the static water table (H), and
- plot of time versus the logarithm of y, where y is the difference between the static water level outside the well and the water level inside the well.

Figure D-1 is a well diagram depicting the aquifer and well parameters of interest. Calculations were made assuming that $L_w < H$. K was calculated as follows:

$$K = [R_c^2 \ln(\frac{r_e}{r_w}) - 2L_e] \; [\frac{1}{t} \ln(\frac{y_o}{y_t})] \qquad (2)$$

where

y_0 = y at time zero, and
y_t = y at time t.

The effective well radius, r_e, and the term $[(1/t)\ln(y_0/y_t)]$ were derived by using the computer program AQTESOLV™ (Geraghty & Miller, 1989). This computer program follows procedures and assumptions outlined by Bouwer (1989).

Slug test graphs are attached at the end of this appendix. Values of y were calculated for a particular time, t, and plotted on the graph. The computer program selects a "best-fit" line through the data points by linear regression along a "straight-line" portion of the graph. The slope of the "best-fit" line is used to calculate the hydraulic conductivity, K.

Two slug tests each were performed inside monitoring well MW-2 and one slug test was performed inside monitoring well MW-5. K is reported in feet per minute (ft/min) on the slug test graphs and was recalculated to feet per day (ft/day). The average K from the data collected from monitoring well MW-2 is 8.6×10^{-1} ft/day. K calculated from the data collected from monitoring well MW-5 is 5.7×10^{-1} ft/day. The average K value from the data collected from both monitoring wells is 7.2×10^{-1} ft/day.

Average pore water velocity

Estimates of average pore water velocity were obtained using the following formula:

$$V = (K*I)/n \qquad (3)$$

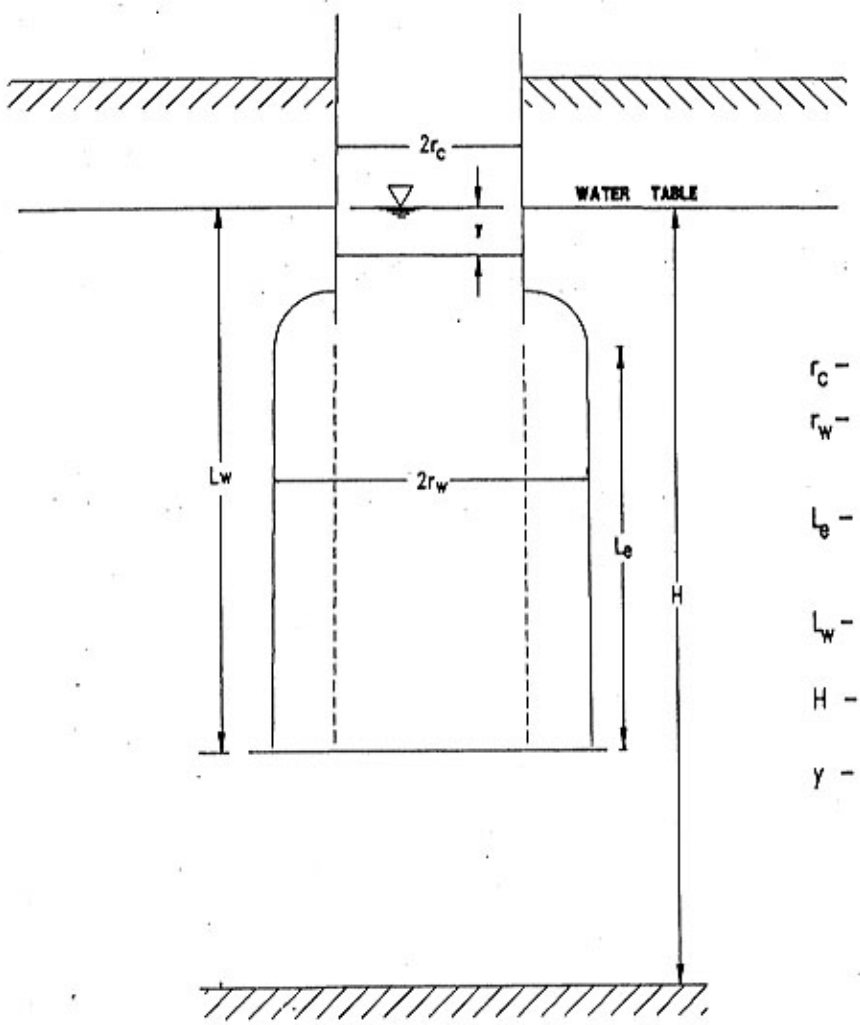
where

V = seepage velocity in ft/day,
K = hydraulic conductivity in ft/day,
i = hydraulic gradient, and
n = estimated porosity.

Assuming an estimated porosity of 30 percent for weathered to oolitic limestone (Davis and Deweist, 1966), an average hydraulic gradient of 1.6×10^{-3} ft/ft, and an average hydraulic conductivity of 7.2×10^{-1} ft/day, the average pore water velocity is calculated as follows:

$$V = (7.2 \times 10^{-1} \text{ ft/day} * 1.6 \times 10^{-3} \text{ ft/ft}) / 0.30$$

$$V = 3.8 \times 10^{-3} \text{ ft/day.}$$



r_c – Radius of well

r_w – Radius of well + total thickness of the sand/gravel pack

L_e – Length of screened interval below the water table

L_w – Depth of well below water table

H – Depth to confining unit below the water table

y – Difference between static water level outside well and water level inside well

FIGURE D-1
DEFINITIONS OF SLUG TEST PARAMETERS (From Bouwer, 1989)

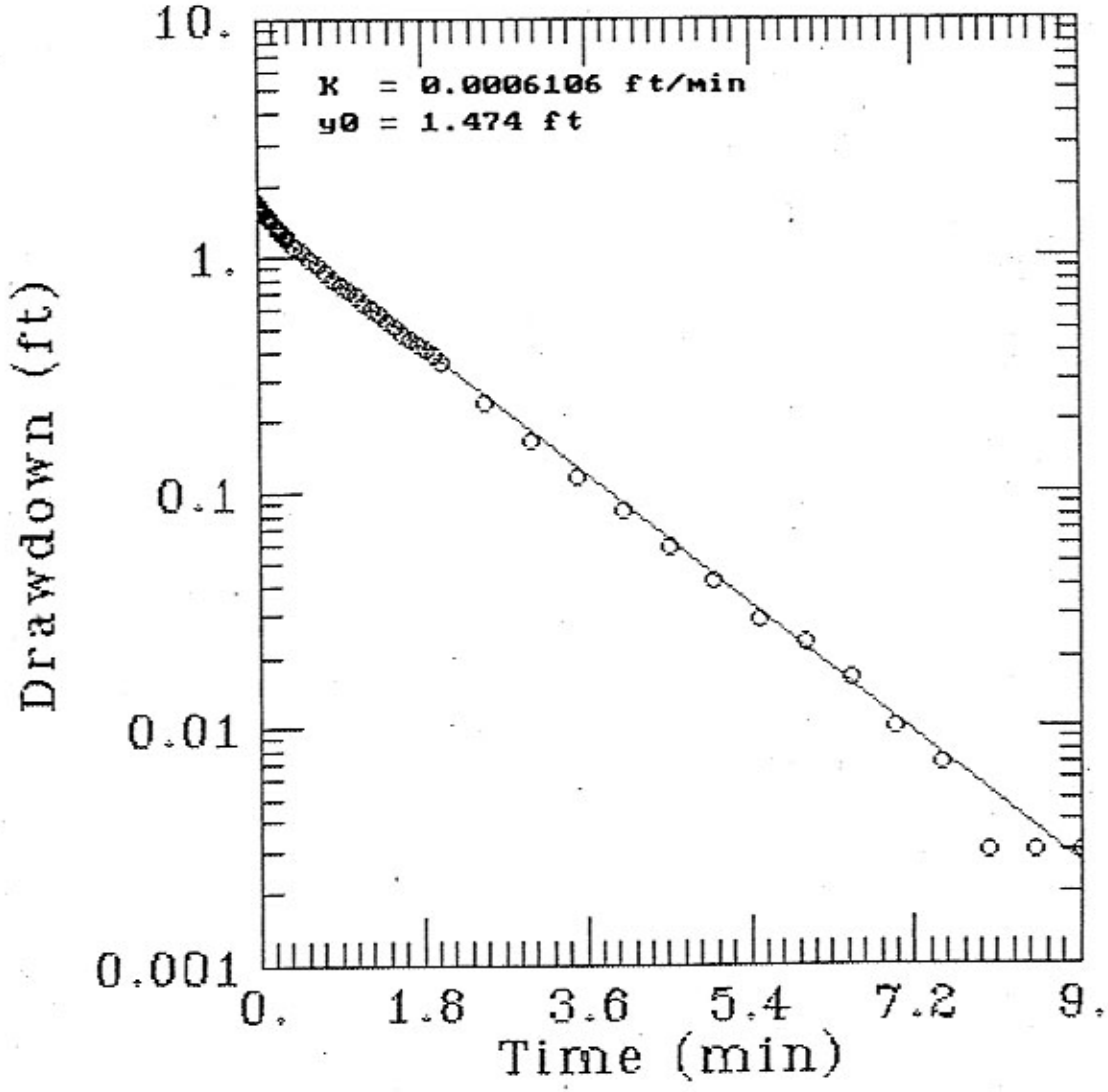
KEYWEST/D-1/KGP/06/22/93

CONTAMINATION ASSESSMENT REPORT
JET ENGINE TEST CELL

BUILDING A-969
NAS KEY WEST,
KEYWEST, FLORIDA

SLUG TEST GRAPHS

KYW-JTC-MW2 RUN#1

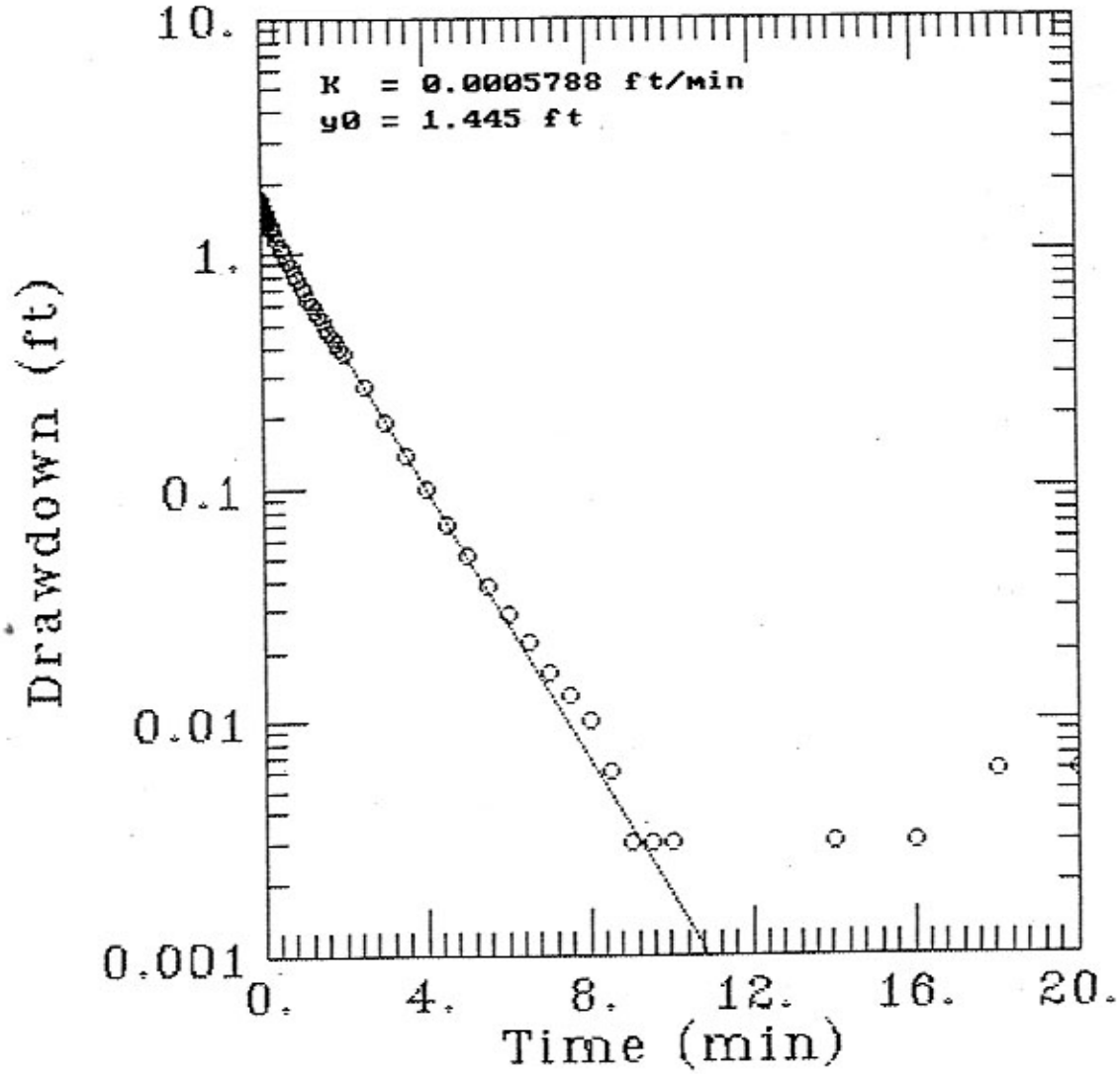


AQTESOLV

GERAGHTY & MILLER, INC.

Modeling Group

KYW-JTC-MW2 RUN#2

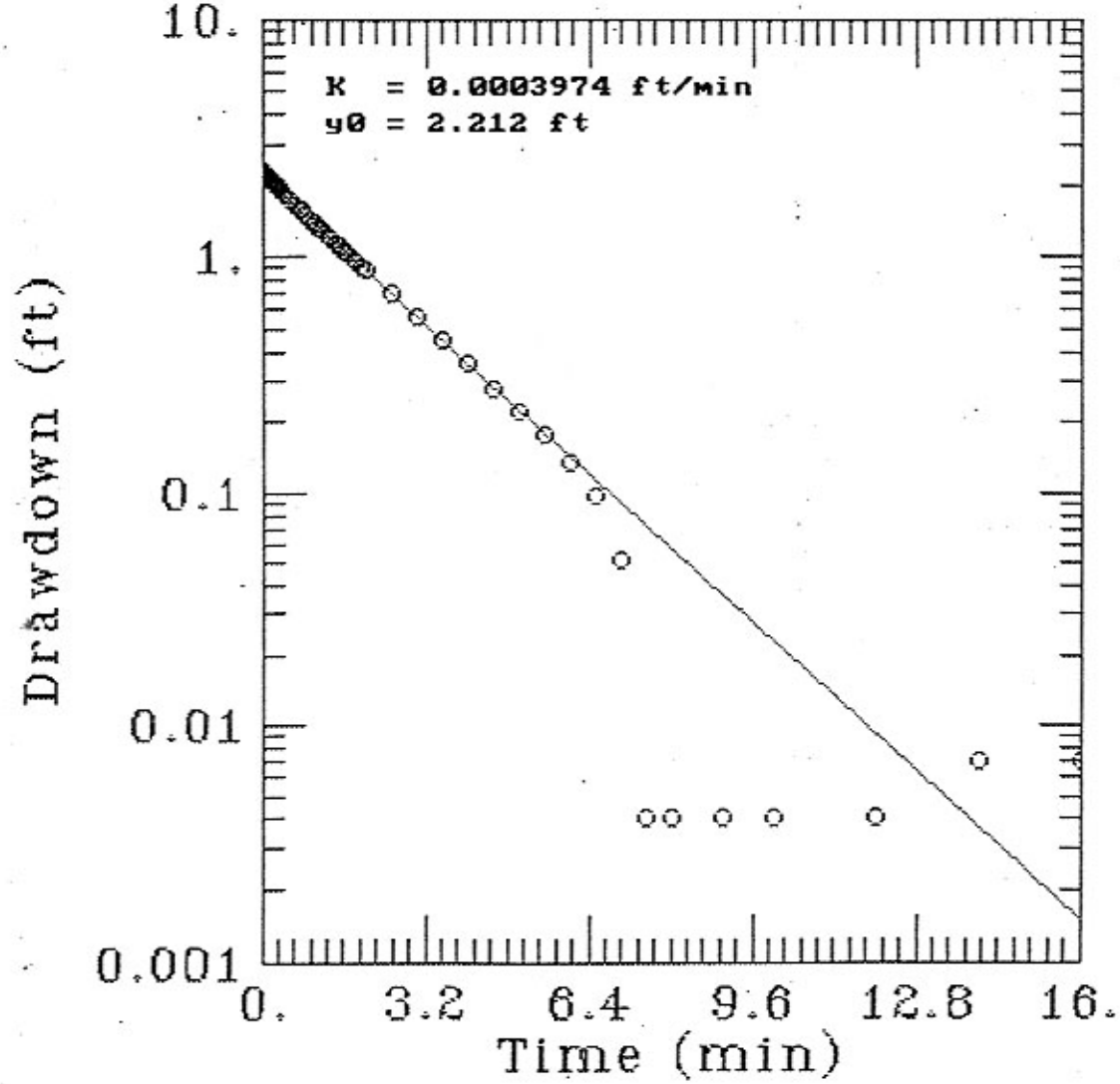


AQTESOLV

GERAGHTY & MILLER, INC.

Modeling Group

KYW-JTC-MW5 RUN#1



AQTESOLV

GERAGHTY & MILLER, INC.

Modeling Group